REPORT RESUMES

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GUIDELINES FOR A CITY SCHOOL BUILDING PROGRAM. (25 ILLUSTRATIVE DOCUMENTS).

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FUNCTIONAL PROCEDURES FOR A MAJOR CITY SCHOOL SYSTEM WHERE SCHOOL PLANNING AND CONSTRUCTION IS A CONTINUOUS PROCESS ARE PRESENTED. INCLUDED ARE MATERIALS FROM CONSULTING ARCHITECTS, ENGINEERS, ATTORNEYS, AND SCHOOL STAFF MEMBERS. FIVE PHASES OF THE CONSTRUCTION PROCESS ARE PRESENTED. THE PREPLANNING PHASE INVOLVES EMPLOYMENT OF AN ARCHITECT AND EXECUTION OF A CONTRACT WITH HIM. DURING THIS PHASE BASIC INFORMATION MUST BE SUPPLIED TO THE ARCHITECT. THE PLANNING PHASE IS ONE WHICH REQUIRES COORDINATION BETWEEN THE ARCHITECT, THE INSTRUCTIONAL STAFF, AND SCHOOL FACILITIES PERSONNEL. EDUCATIONAL SPECIFICATIONS, PRELIMINARY PLANS AND FINAL PLANS ARE EVOLVED. THE THIRD PHASE IS CALLED THE BID AND CONSTRUCTION CONTRACT PHASE. BIDS MUST BE TABULATED AND EVALUATED AND FINALLY CONTRACTS ARE EXECUTED. THE CONSTRUCTION PHASE INVOLVES PROGRESS REPORTS, PROCESSING CHANGE ORDERS, ACQUISITION OF UTILITY PERMITS, EQUIPMENT DELIVERY, PAYMENT SCHEDULES, AND PROJECT COORDINATION. THE LAST PHASE IS THE ACCEPTANCE PHASE. A FINAL INSPECTION IS HELD, MAINTENANCE PERSONNEL ARE INSTRUCTED ON USE OF MECHANICAL AND ELECTRICAL EQUIPMENT, AND ACCEPTANCE DOCUMENTS ARE PROCESSED DURING THIS PHASE. ONE HUNDRED THIRTY PAGES OF EXHIBIT MATERIALS ARE INCLUDED IN THIS DOCUMENT. FORMS FOR ALL PHASES ARE PRESENTED. THIS DOCUMENT IS ALSO AVAILABLE FROM THE GULF SCHOOL RESEARCH DEVELOPMENT ASSOCIATION, 3801 CULLEN BOULEVARD, HOUSTON, TEXAS 77004, FOR $3.00. (RH)

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Guidelines for a City School Building Program

(25 Exhibits)

by

George A. Knight

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3801 Cullen Boulevard Houston, Texas 77004
1966

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GUIDELINES FOR A
CITY SCHOOL BUILDING PROGRAM

(25 Illustrative Documents)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREFACE

Documentation and control of school building programs in city school systems require numerous established procedures, checkpoints, and communications. The complex working relationships can be greatly simplified by work schedules, key instructions, and illustrations. Since the average school administrator has only occasional or part-time responsibility for school construction, we requested George A. Knight, Director of School Building Program in the City of Houston, to prepare a statement of detailed functional procedures as they occur in a major city school system where school planning and construction is a continuous process.

Administrative accountability for a school construction program entails documentation of every legal step, policy decision, and official communication. Much essential information is incorporated in such documents. This is illustrated (p. 20 ff.) in one hundred fifty pages of exhibit material. Other important details are contained in the text of the guidelines such as the requested reduced scale preliminary plans in a stipulated number of copies (p. 9).

Flexibility is always desirable in the formulation of guidelines. Certain business procedures are imperative and certain information is essential, but the prescribed procedures should not inhibit economical, efficient, and creative solutions to school construction needs. A delicate, well-balanced judgment must be exercised in preparing formal guidelines, often reserving for imagination and negotiation the decisions which need not necessarily be formalized in guideline statements.

The association appreciates this exemplary contribution from a major city school operation.

Wallace H. Strevell
Executive Secretary

FOREWORD

The planning, design and construction of school facilities require an effective and organized system of communication between architects, contractors and staff members of the school district responsible for providing facilities to house the pupils, personnel and pertinent operations of the district.

The materials contained herein represent an effort to prepare detailed procedures applicable to the specific needs of the School Facilities Department of the Houston Independent School District whereby vital information may be acquired and disseminated to those responsible for making decisions.

The thinking of the writer is represented in the bringing together of materials prepared by consulting architects, engineers, attorneys and staff members working for the Houston Independent School District. It is presented with the hope that other school districts may profit by adapting any of the ideas contained herein.

George A. Knight

George A. Knight, Director
School Building Program
Houston Independent School District

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FUNCTIONAL PROCEDURE
OF THE
PLANNING AND BUILDING OF SCHOOL BUILDINGS

From Selection of Architect Through Acceptance of the Building

INTRODUCTION

1. PREPLANNING PHASE

    A. Selection of architect by Board of Trustees

    B. Notice to architect of commission

    C. Transmittal of contract information

    D. Execution of contract document

        1. Transmit to architect for signature

        2. Transmit to Business Manager for signature of Board officers.

    E. Basic information furnished architect

        1. Boundary survey

        2. Program of requirements and educational specifications

        3. Suggested minimum requirements

        4. Request recommendation for engineer to perform topographic survey (if necessary).

II. PLANNING PHASE

    A. Initial conference

    B. Schematic review

    C. Preliminary plans and budget estimate

D. Preliminary plans, approval or disapproval, notice to architect

   1. Instructions to bidders

   2. Bid form

   3. Bid bond

   4. Contractor's qualification and experience record

   5. Contractor's financial statement

   6. Performance bond

   7. Payment bond

   8. General conditions

   9. Design standards

E. Developing final plans and specifications

F. Final plans and specifications for approval by Board of Trustees

G. Bid document for furniture and equipment

III. BID AND CONSTRUCTION CONTRACT PHASE

A. Receive, read, tabulate and analyze bids

B. Recommendation to Board of Trustees of construction contract

C. Responsibilities of the General Contractor and Project Architect

D. Contract data coordination

E. Contract document distribution

IV. CONSTRUCTION PHASE

A. Progress report content and time

B. Procedures for processing change orders

C. Utility permits

D. Equipment delivery

- E. Project inspection
- F. Request for payments
- G. Project coordination

V. ACCEPTANCE PHASE

- A. Final inspection
- B. Instruction, mechanical and electrical equipment
- C. Coordinate acceptance documents
- D. Facility documents
- E. Equipment and furniture

INTRODUCTION

A. Purpose

To assist staff members, architects, engineers, contractors and others working for or under contract with the Houston Independent School District in their relationships with various departments of city, county, and other governmental agencies on problems concerning construction or acquisition of school buildings, sites, streets, and related physical improvements.

B. Functions

To coordinate and expedite all operations involved in the planning and construction of school facilities and related services to provide adequate housing for the pupils, personnel and pertinent functions of the Houston Independent School District such as:

1. Work with staff members, architects and others on details of school facilities planning and development.
2. Assist in preliminary studies preparatory for recommendations concerning new school sites, changes or additions to existing sites, and modernization, rehabilitation or additions to existing buildings.
3. Work with the instructional staff in the development of basic programs of requirements and educational specifications as might be needed for planning new school facilities.
4. Cooperate with the Director of Equipment and other staff members in preparation of specifications for new equipment.
5. Confer with the Maintenance Department to evaluate and recommend technical and economical improvements in building standards.
6. Maintain performance records on the services of architects, engineers, contractors and consultants.
7. Assist in the selection and recommendation of architects, engineers, and contractors.
8. Work with architects as outlined in the following units.

I. PREPLANNING PHASE

Much of the preplanning phase of a project is done before the architect is commissioned by the Board of Trustees. This sequence of functions will begin with that act and proceed through the various steps required to coordinate and process the documents, forms, and information necessary to plan and construct school facilities.

A. Selection of Architect by Board of Trustees

Architects are commissioned by the Board of Trustees after consultation and on the recommendation of the Superintendent of Schools. They are responsible for the preparation, presentation, coordination, and completeness of all plans and specifications, and for inspection of the project while under construction to insure that all work is performed according to plans and specifications and in a good and workmanlike manner.

B. Notice to Architect of Commission

Immediately following approval of the Board of Trustees, the architect is notified, by letter (see Exhibit I-A), of his commission to perform architectural services for a particular project. This letter should state the date of the approval with the description of the project as presented and approved by the Board of Trustees, and should request a conference at an early date.

C. Transmittal of Contract Information

Concurrent with the letter to the architect of his commission, the attorneys for the Board of Trustees should be requested, by letter (see Exhibit I-B) to prepare the contract documents (5 copies) for execution by the architect and officers of the Board of Trustees. This letter should contain the same description of the project as presented and approved by the Board of Trustees.

D. Execution of Contract Document

Upon receipt of the contract documents (see Exhibit I-C) from the attorneys, transmit by letter (see Exhibit I-D) to the architect for signature and return for execution by officers to the Board of Trustees.

When the signed contracts are received from the architect, they are then transmitted to the Business Manager (see Exhibit I-E), for final execution by the officers of the Board of Trustees and distributed as follows:

- Architect
- Business Office
- Deputy Superintendent for Administration
- Director of Building Program
- Consulting Architect

E. Basic Information Furnished Architect

During the initial conference with the architect, it is desirable to have available for him the following basic information:

1. Boundary survey if the project is a facility to be placed on a new site. A plot plan, if additions or modernization to an existing school or facility.

2. Program of requirements and educational specifications should include the spaces required and their relationships to each other with the functions each is to serve. (See Exhibit I-F).

3. Suggested minimum requirements as furnished by the instructional divisions. (See Exhibit I-G).

4. Request recommendation for a civil engineer to perform topographic survey if necessary. This should be a part of the material furnished by the Business Office along with the boundary survey.

II. PLANNING PHASE

The planning of school facilities requires close coordination between the architect, instructional staff and school facilities personnel. This involves interpretation of educational specifications to the architect and the follow-through to see that they are properly translated into working documents. The following outline is intended to serve as a guide in answering some of the questions involved in accomplishing this task.

A. Initial Conference

The architect should be notified by letter (see Exhibit I-A) as soon as practical following approval of the commission by the Board of Trustees. To expedite the project it is appropriate to also call the architect and arrange a time and date for the initial conference. During this conference it is desirable to have staff members from the instructional division, elementary or secondary, present to answer questions and make any comments or suggestions pertinent to the scope, function, and special requirements of the project. The information and materials listed in Phase I-E should be presented during this conference and any preliminary questions the architect might have should be answered. A target date for the first schematic review should be agreed upon at this conference.

The architect should be informed of the persons responsible to the Houston Independent School District that he is to coordinate all work on the project with and the role of the Consulting Architect with respect to the project and the district.

B. Schematic Review

It is desirable to have a review of the several approaches the architect may wish to present in schematic form at an early date to observe his expression of desirable space arrangements and site utilization and to permit the staff, including the instructional division, to express their desires on these factors. During these review conferences, information will be supplied the architect to enable him to prepare the preliminary plans and budget estimate for presentation to the Board of Trustees for approval.

C. Preliminary Plans and Budget Estimate

The preliminary plans and budget estimate as presented to the Board of Trustees for approval should reflect the basis from which the detailed drawings and specifications are to be prepared and the cost estimate is to be arrived at for bidding purposes. Therefore, the following check list should serve as a guide in the preparation of these documents:

1. Preliminary plans

   a. Plot plan, to scale, showing
      (1) Size and shape of entire site with overall dimensions and points of compass.
      (2) Location of the proposed building on the site, its future additions and existing structures.
      (3) A tentative development plan of site showing location of service and recreational areas.
      (4) Adjacent streets, highways, sidewalks.
      (5) Location of existing utilities, such as water, sewer, electricity, gas, telephone.

   b. Floor plans to scale, usually not less than 1/16", showing
      (1) Type of wall, floor, partition, roof and stair construction.
      (2) Location, sizes, and purposes of all rooms.
      (3) Location and sizes of all stairs, corridors, doors, windows.
      (4) Location of plumbing fixtures and built-in equipment
      (5) Tentative equipment layouts for special rooms
      (6) Overall dimensions
      (7) Future additions

   c. Elevations (at same scale as plans) of four sides showing
      (1) Exterior treatment
      (2) Overall dimensions
      (3) Finished floor and ceiling levels.
      (4) Finished outside grade
      (5) Windows, doors, steps, areas, retaining walls, and so on.

   d. Sections (at the same scale as floor plans) where necessary to explain any conditions not made clear in other drawings.

   e. Proposed water supply and sewage disposal facilities.

2. Outline specifications submitted for preliminary approval should include at least the following information:

   a. Type of construction: foundations, walls, floors, partitions, roofs, stairs, etc.

   b. Materials of exterior finish: walls, roofs, windows, doors, trim, etc.

   c. Materials of interior finish: walls, floors, ceilings, trim for various types of rooms.

   d. General contract equipment: cabinets, counters, chalk boards, display facilities, shelving, facilities for control of natural lighting.

   e. Mechanical provisions: plumbing and sewage disposal, heating, ventilation, electrical, signaling and communication for various departments.

When agreement has been reached between the staff representative and the architect that the preliminary plans and budget estimate are ready for presentation to the Board of Trustees, the architect shall have the tracings prepared for the "approval" signature of the Deputy Superintendent for Administration and the Business Manager. After the approval signatures have been obtained, the plans are to be reduced to 8½ x 14 inches and 75 copies with supporting outline of materials, type of construction, budget estimate, etc. are to be delivered to the office of the Deputy Superintendent for Administration not later than six days prior to the scheduled meeting of the Board of Trustees. The preparation and submission of this materials is to be coordinated through the office of the Director of the School Building Program. (See Exhibit II-A).

D. Preliminary Plans, Approval or Disapproval, Notice to Architect

In most instances the architect will be present for the presentation of preliminary plans and budget estimate for approval; however, written notice of such approval or disapproval should be made as soon as practical following action by the Board of Trustees (see Exhibit II-B). A conference should be requested to discuss the time schedule and establish a target date for presentation of final working drawings and specifications. During this conference the following forms and material should be presented to the architect.

1. Instructions to bidders (Exhibit II-C)
2. Bid form (Exhibit II-D)
3. Bid bond (Exhibit II-E)
4. Contractor's qualification and experience record (Exhibit II-F)
5. Contractor's financial statement (Exhibit II-G)
6. Performance bond (Exhibit II-H)
7. Payment bond (Exhibit II-I)
8. General conditions (Exhibit II-J)
9. Design standards (Exhibit II-K)

E. Developing Final Plans and Specifications

Final plans and specifications should be accurate, simple, clear, and one should amplify or explain the other. During this period studies and conferences will be required to establish specific equipment and furnishings to be included in the general contract, the arrangement of equipment in special areas such as the kitchen, science laboratories, industrial arts, etc. Decisions should be reached on types of materials, finishes, adjustment or refinement of any service or central facilities to provide optimum service and accessability. A period of two weeks is desirable for study and review of the plans and specifications by the Consulting Architect and staff to check for inclusion of district standards and specifications before presentation to the Board of Trustees for approval. This time for study and review should reduce the number of alternates and change orders required during the bid time and period of construction.

F. Final Plans and Specifications for Approval by Board of Trustees

When final plans and specifications have been developed in accordance with the approved preliminary plans and checked for completeness by the staff and Consulting Architect they are ready for presentation to the Board of Trustees for approval. Seventy five copies of the recommendation with the outline specifications and budget estimate, as amended, should be prepared and transmitted to the office of the Deputy Superintendent for Administration six days prior to the scheduled meeting of the Board of Trustees.

A part of the recommendation for final approval should include a request for establishing a bid date. After approval, the notice of advertisement for bids (see Exhibit II-L) should be prepared and transmitted to the Business Manager (8 copies).

G. Bid Document for Furniture and Equipment

On approval of final plans and specifications, the Director of Equipment may proceed with the take-off of items of equipment to be furnished by the District in preparation of submitting same for bids. Unless more than one facility is to be included in this bid document, authorization should be requested from the Board of Trustees at the time final plans are approved to advertise for bids on furniture and equipment.

III. Bid and Construction Contract Phase

The following outline of procedures is designed to effect a uniform manner of processing construction contracts from the time bids are received and tabulated until the contracts have been executed and delivered.

A. Receive, Tabulate and Analyze Bids

After bids are received, tabulated and analyzed by administrators and architects, a recommendation will be forwarded to the Board of Education based upon:

1. The relationship of the low bid to the budget,
2. Acceptance or rejection of alternate bids, and
3. Contractor's qualifications and experience records and financial statement.

B. Recommendation to Board of Trustees, Construction Contract

The Project Architect will transmit by letter to the Business Manager, countersigned "Approval Recommended" by the Deputy Superintendent for Administration, the recommendation described in Paragraph A, together with a Tabulation of Bids form showing all information as presented in the individual bids and indicating the successful bidder by circling all items accepted. Seventy-five copies of the letter of recommendation and the tabulation of bids should be delivered to the Office of the Business Manager as soon as possible after the decision on the recommendation has been reached to be presented to the Board of Trustees for approval.

C. Responsibilities of the General Contractor and Project Architect

1. A list of sub-contractors must be delivered by the General Contractor to the Project Architect within 24 hours of the bid opening. He will review them, making any appropriate recommendations, and when satisfied with their qualifications, transmit to the Director of School Building Program. Final approval of the sub-contractors should not be forwarded to the General Contractor until the Consulting Architect and school administrators have had an opportunity to review the list; however, responsibility for investigating and approval lies with the Project Architect. The final approved list will be filed with the Controller's Office, together with 7 copies of the "Schedule of Values" on the form supplied by the School District. The Schedule of Values, which is prepared by the General Contractor, must be reviewed and signed by the Project Architect. (See Exhibit III-A)

2. Within 48 hours after award of contract by the Board of Education (see Exhibit III-B), the General Contractor must deliver to the Project Architect, for transmittal to the Director of School Building Program, the performance and payment bonds (see Exhibit II-H and II-I) in triplicate with all other pertinent information for the preparation of the construction contract. This information shall include the following:

1) Name of contractor
2) Contractor's address and telephone number
3) Time of opening of bids
4) Official name of project
5) Amount of base bid and listing of all alternates accepted and their value
6) Total amount of contract including all alternates accepted
7) Completion time as bid
8) Name of Project Architect
9) Legal address of project
10) Proration of total amount of contract between labor and materials. (This should be verified by a letter from the General Contractor to the Architect.)
11) Amount of liquidated damages specified
12) List of contract documents, including Specifications by section, name and number, Drawings by sheet number and date, and Addenda by number and date.

3. The General Contractor shall deliver all specified insurance certificates to the Project Architect who will compare them to the specified requirements and transmit same to the Director of the School Building Program.

4. The Project Architect shall deliver to the Director of the School Building Program two sets of the Plans and Specifications, together with all addenda. Each sheet of the plans, the last page of each section of the specifications, and all pages of all addenda shall be signed and dated by the Project Architect and the General Contractor. In order to complete the permanent record of the scope of the project, an addendum shall be issued by the Architect subsequent to the award of the contract stating which alternates (if any) have been accepted and which have been rejected. After being signed, copies will be transmitted to the Controller's Office and to the Contractor.

D. Contract Data Coordination

The Director of the School Building Program will transmit the performance and payment bonds and letter containing pertinent contract information to the Attorney for the Board of Education, who will prepare the construction contract and examine the bonds.

Upon receipt from the Attorney of the construction contracts and bonds, the Director of the School Building Program will instruct the Contractor to execute the contracts and bonds, affix the corporate seal (if a corporation), and have them attested by an official of the contracting company, before transmitted with all supporting documents, to the Business Manager for signatures. After the Business Manager has signed the contracts they will be forwarded to the Controller's Office for signatures of the Secretary and the President of the Board of Education.

E. Contract Document Distribution

When the construction contracts have been executed, they will be distributed as follows:

1. The original is retained in the office of the Controller
2. One copy to the General Contractor (together with 1 copy of the executed performance and payment bond)
3. One copy to the office of the Deputy Superintendent for Administration
4. One copy to the Director of the School Building Program
5. One copy to the Project Architect
6. One copy to the Consulting Architect.

IV. CONSTRUCTION PHASE

The construction phase of school facilities brings a third party, the general contractor, into the procedures involved in the building process. Prior to actual construction, it is imperative that a clear understanding between the owner, architect and general contractor be reached regarding certain items and procedures pertinent to the individual project. The following guidelines are intended to answer questions and establish procedures for the orderly processing of reports, requests and other data as required to facilitate the construction process with a minimum of delay.

A. Progress report, content and time

One means of keeping the owner informed of the status of the project and the problems encountered is by the Weekly Progress Report (see Exhibit IV-A). Information submitted on the individual project report is used in the preparation of the Building Progress Report submitted to the Board of Trustees in order that they may stay informed of the condition of each and all projects under construction. The data supplied by the report, other than the general data, such as time, weather, etc., will keep the Director of the Building Program informed on the various phases of the project as they are being performed and will allow him to make periodic visits to the site to observe work under way. The report should be completed on Friday of each week and copies mailed to the Director of Building Program and the Consulting Architect.

B. Procedures for processing change orders

This section is in no way to be interpreted as a change in the contract conditions concerning change orders. It is to further explain procedures to be followed in the processing of "Modification of Contract" documents. When it becomes evident that changes are necessary in materials and labor that require monetary changes, either additions or deductions, it is the responsibility of the general contractor to have processed through the office of, and with the recommendation of the project architect, the Modification of Contract form (see Exhibit IV-B). This form is to be signed by the Deputy Superintendent for Administration and Business Manager. The school district will not be responsible for any expenditures of funds for Modification of Contract without prior approval of the Deputy Superintendent of Administration or the Director of the School Building Program. In case of emergencies, verbal approval may be given pending written confirmation as outlined above. Any expenditure or deduction in excess of one thousand dollars requires approval of the Board of Trustees.

C. Utility permits and service

The processing of utility permits and fees must be coordinated in the early part of the construction program. A conference between the project architect, general contractors' representative, Director of the School Building Program and the consulting architect during the first two weeks, following the award of construction contract for new facilities should be called to outline the action necessary to process the applications for water, gas, electric and sewer service and the legal documents for the granting of easements, etc. Any questions regarding fees for such services will be coordinated between the respective utility company, the project architect, consulting architect, and the Director of the School Building Program. The resulting recommendation will be submitted through the Director of School Building Program to the Deputy Superintendent for Administration for approval and further submitted to the Board of Trustees for approval if the sum involved requires such approval.

In the event occupancy is required before completion of the project and the owners' utility meters placed in service, agreement must be reached between the general contractor and owner, through coordination of the project architect, stating in written form the pro-rata cost of such service to be paid by the contractor and the owner. Such agreement must be approved by the Deputy Superintendent for Administration for transmittal to the Business Manager.

Projects involving additions, modernization or rehabilitation will necessitate agreement on the use of existing utilities prior to the tapping of such utilities. The special Conditions of the Specifications should stipulate whether the contractor is to furnish his own service or be permitted to use existing facilities. On projects where the Contractor is to furnish these services, it is the responsibility of the project architect to see that this is done and not permit the tapping of school district facilities. In the event it becomes necessary for such tapping, written agreement must be on file in the office of the Business Manager stipulating the conditions of arriving at costs or fees for such service using the procedure outlined herein.

D. Equipment delivery

Many items of equipment requiring electrical or plumbing connections are purchased by the school district for delivery to the job site. To prevent delay by having this equipment at the site for installation when needed, the Director of School Building Program should be notified two weeks in advance by the general contractor through the project architect when certain items are needed to meet the respective subcontractors' time schedule. Upon notice from the project architect, the Director of School Building Program will notify the Director of Equipment to have the items specified delivered to the job site. Any problems encountered in placing the equipment supplied by the school district into operation should be coordinated through the office of the Director of School Building Program.

E. Project inspection

The primary responsibility for project inspection to determine conformity with plans and specifications is vested in the project architect; however, it is desirable to have the consulting architect make frequent inspections of projects during construction and keep the Director of School Building Program informed of any problems that exist. In addition to the Weekly Progress Report and the periodic reports from the consulting architect, the Director of the School Building Program should visit the various job sites as often as time and work load will permit to keep abreast of developments and conditions at each project. All reports should be reduced to writing for future reference.

F. Request for payments

During the construction phase of a project the general contractor will prepare the Request for Payment forms (see Exhibit IV-C) listing costs of equipment delivered to job sites and labor cost in accordance with the Schedule of Values submitted immediately following the award of contract. With the approval of the project architect, the Request for Payment is to be transmitted to the Deputy Superintendent for Administration for signature. They are then forwarded to the Business Manager for payment. The project architect is responsible for verifying the quantity of materials in place and on the job site as reflected in the Request for Payments.

G. Project coordination

During the construction phase, the project architect is the owner's representative designated to see that the work is performed in accordance with approved plans and specifications. However, this does not preclude changes being directed by the Director of School Building Program after consultation with staff members, the consulting architect, or as directed by the Executive Committee of the Board of Trustees acting through the executive offices of the school district. All change orders and any other problems that might arise will be coordinated by the Project Architect through the office of the Director of the School Building Program.

V. ACCEPTANCE PHASE

The acceptance by the owner, of a school facility, requires careful inspection by the project architect, consulting architec and members of the school staff in company with members of the general contractor's representatives to ascertain that approved plans and specifications, city codes and school district standards have been met. It further requires certain documents, drawings, releases and certificates be furnished the owner after the structure has been accepted before the final payment can be made to the contractor. The following units will describe briefly the steps involved in the acceptance of a facility.

A. Final inspection

The project architect will notify the Director of the School Building Program a week in advance, if possible, when he and the general contractor are in agreement that the project is complete and ready for acceptance by the owner. The Director of School Building Program will set a time and date for such an inspection and notify the staff members concerned of the scheduled inspection. The project architect and representatives of the general contractor should have gone over the various phases of the project with the consulting engineers on their respective phases. Any discrepancies noted at that time should be corrected prior to the request for final inspection and acceptance by the owner.

In the event that a facility must be occupied prior to final acceptance, an inspection by the general contractor, project architect, consulting architect and staff members may be held to establish the condition and status of completion whereby the owner may assume responsibility for certain portions of the project.

Immediately following the inspection of a facility, the project architect is to furnish the Director of School Building Program a list of all items that need correction with a copy to the General Contractor requesting action.

B. Instruction, use of mechanical and electrical equipment

During the final inspection arrangements for the appropriate supplier or sub-contractor to instruct maintenance personnel in the operation and maintenance of the mechanical and electrical equipment installed on the project should be made. This phase of the project should be coordinated by the project architect through the office of the Director of Maintenance.

C. Coordinate acceptance documents

The recommendation for acceptance (see Exhibit V-A) of a project is prepared and submitted to the Business Manager with the approval of the Deputy Superintendent for Administration. After completion of the final inspection, agreement must be reached between the general contractor, project architect and owner on the sum to be withheld, if any, depending upon the incomplete work remaining on the job. If such is the case, the sum to be withheld will be so stated in the recommendation to the Business Manager for submission to the Board of Trustees for approval. In addition to acceptance by the Board of Trustees, the general contractor must submit, with the approval of the project architect, certified statements from each sub-contractor that all payments have been made in full, a certificate of occupancy from the city, and any other releases that might be required under his contract.

D. Facility documents

Immediately upon acceptance of the facility by the owner, the project architect is to prepare and deliver to the Office of the Director of the School Building Program, a complete set of transparencies and "as built" drawings for the permanent records. The general contractor is to transmit the keys, by letter listing the quantity and number of keys in order that they may be properly checked through the maintenance department and business office as a matter of record. Any maintenance manuals or documents are to be transmitted, by letter, to the Director, School Building Program for dissemination to the appropriate department of the school district.

E. Equipment and furniture

When agreement has been reached between the general contractor, project architect and owner that the facility is ready for occupancy, the Director of the School Building Program will notify the Director of Equipment and Supplies to have the numerous pieces of furniture and equipment delivered to the building. He will further notify the Supervisor of Custodians to have someone at the building to assist the principal in receiving and locating the above mentioned items.

EXAMPLE

HOUSTON INDEPENDENT SCHOOL DISTRICT
Houston, Texas

June 15, 1965

Wieb and Walla, A.I.A.
1471 Temple Court
Houston, Texas

Gentlemen:

This is to advise that the Board of Trustees at its regular meeting on Monday evening, June 14, authorized your firm to work with the administrative staff through this office in the preparation of plans and specifications for the construction of a replacement of our MacGregor Elementary School, 4801 La Branch Street.

We would like for you to join with us in conference as soon as possible to discuss the program of requirements, educational specifications, site conditions, etc., and to establish procedures for the processing of this project. This assignment will carry the regular 6% architectural fee as per established policy. Please let us know of your willingness to accept this assignment at your earliest convenience.

We are looking forward to working with you on this project.

Very truly yours,

EXHIBIT I-A

EXAMPLE

HOUSTON INDEPENDENT SCHOOL DISTRICT
Houston, Texas

June 15, 1965

Thomas, Boggs and Small, Attorneys
4414 City National Bank Building
Houston, Texas

Gentlemen:

This is to advise that the Board of Trustees at its regular meeting on Monday evening, June 14, authorized Wieb and Walla, Architects, 1471 Temple Court, Houston, Texas as project architects for "a replacement of MacGregor Elementary School, 4801 LaBranch Street, Houston, Texas."

Please prepare the contract document at your earliest convenience for execution by the architects and officers of the Board of Trustees.

Very truly yours,

EXHIBIT I-B

EXAMPLE

ARCHITECT'S CONTRACT

STATE OF TEXAS
COUNTY OF HARRIS

THIS MEMORANDUM OF AGREEMENT made and entered into on this the _________ day of ________________________, 19_____, by and between the Houston Independent School District, a body corporate, created under and by virtue of the laws of the State of Texas, acting herein by and through the President of its Board of Education, hereinafter sometimes referred to as "First Party," and

____
sometimes hereinafter referred to as "Second Party":

First Party hereby employs Second Party as the Architect for the following contemplated school projects and improvements:

All of said work to be done and performed by the Architect is payable from or out of funds of the Houston Independent School District, legally available, and Second Party has accepted such employment, all upon the following terms and conditions and stipulations, to-wit:

ARTICLE I.

1. First Party will furnish the following information to Second Party:

   (a) Site data, which shall include topographic surveys at a 100 ft. grid and utility services in the form of blueprints and subsoil investigation at the cost of First Party.

   (b) Planning or construction standards, together with interior finish and other features such as First Party may desire to have uniform in similar project.

   (c) Such specifications, including General Conditions, as First Party may desire to have uniform in similar projects.

   (d) Mechanical information with recommended heating, ventilating, plumbing and lighting systems.

ARTICLE II.

1. The Architect's professional services, to be performed by Second Party for the improvements hereinbefore cited, shall consist of the necessary conferences, the preparation of preliminary studies, working drawings, specifications, large scale and full size detail drawings; assist in the drafting of proposals and contracts; the issuance of certificates of payment; the keeping of accounts, the general administration of the business and supervision of the work; all in conformity with the foregoing and following provisions of this agreement. There shall be included in the duties of the Architect's professional services, but not by way of limitation, the following:

    (a) After being furnished with information as to the kind and scope of the said improvements desired by First Party, Second Party shall make preliminary studies as are necessary to result in approved determinations as to placement on site, arrangement, basic construction,materials, treatments, equipment, locations, and plumbing, heating, ventilating and lighting systems. Second Party shall submit preliminary studies, in the form of drawings and written descriptions, to First Party for approval. With the submission of preliminary drawings and descriptions intended by Second Party to constitute final preliminary studies, Second Party shall submit preliminary estimates of the cost of improvements, without liability for the ultimate accuracy of such estimates. Working drawings and specifications shall not be started until their preparation is authorized by First Party, after approval of final preliminary studies.

    (b) After approval of final preliminary studies and authorization by First Party for their beginning, Second Party shall prepare the working drawings and specifications which shall be further logical developments of approved final preliminary studies, showing and describing in full detail the general, structural, mechanical, and electrical construction, and indicating the equipment locations and site development pertinent to the project, whether or not such equipment or site development features are to be included in contracts based upon such working drawings. Second Party shall prepare, reproduce and distribute the specifications, which shall supplement the working drawings and describe in detail the types and qualities of the materials and the manner of their assemblage and erection, and the general conditions, which shall supplement both the working drawings and specifications and set forth the contractual relations between Owner and Contractors.

    (c) Second Party shall assist in the preparation and assist in processing all applications for priorities or permission to proceed with the improvements.

    (d) Second Party shall prepare the text of advertisements for bids which will be ordered and paid for by First Party, and shall prepare, reproduce and distribute instructions to bidders, bid forms, and all required bidding documents.

(e) Second Party shall reproduce and distribute as many copies of working drawings, specifications and other bidding and proposed contract documents as are required to permit and facilitate competitive bidding; shall answer inquiries by contractors, subcontractors, materialmen and reporters and perform all necessary services to facilitate bidding, and shall assist in the tabulation and canvassing of bids. The cost of reproduction of working drawings, specifications and other bidding and proposed contract documents shall be paid by Second Party up to Twenty (20) copies.

(f) Second Party shall, as the work progresses, supervise the issuance of certificates for payment to contractors, and at completion, the securing and submitting of sufficient evidence that all indebtedness for labor and materials has been paid by the contractors before final payments are approved; and he shall approve all certificates for payment and supporting documents required prior to their submission to First Party.

(g) During construction, Second Party, through personal services, those of principals in the firm and/or properly and well-qualified registered architects, engineers or others satisfactorily qualified, acting for Second Party, shall perform the supervision services herein described; Second Party shall:

(1) Inspect the work at the site as often as necessary so as to determine that labor performed and materials furnished are in accordance with plans and specifications and in good workmanlike manner. Without limitation of the foregoing, when work on foundations, slabs, reinforced concrete structural members, structural masonry, gravel guards, flashings, expansion joints, mechanical and electrical work is in progress at the site, inspection shall be made so as to determine that labor performed and materials furnished are in accordance with plans and specifications and in good workmanlike manner.

(2) Make such supplementary detail drawings as are required to supply full information to contractors.

(3) Study and direct the necessary correction of shop drawings and approve them promptly when acceptable.

(4) Carry on all necessary conferences and correspondence with contractors, sub-contractors and materialmen to aid them in obviating errors and in understanding and performing their work fully, directing attention to unacceptable work or other contract non-compliances and calling for their correction; prepare and submit such periodic and special reports as may be found necessary and be requested by First Party.

(5) Canvass any changes in the work that may appear desirable and negotiate those that are acceptable to First Party, transmitting approved change orders.

EXHIBIT I-C

(6) Study contractor's applications for payments and all supporting records and documents, negotiating and correcting of such documents, if found to be unacceptable, approving them when acceptable and issuing certificates for amounts found to be payable.

(7) Keep accurate current records of all contract prices and changes as to work, price, time schedules and conditions, the amounts that have been certified for payment and the uncertified balances in accordance with forms approved by Party of the First Part.

(8) Endeavor by faithful performance of the supervision services described above and otherwise as may be necessary to guard First Party against defects and deficiences in the work of contractors to the best of the ability of Second Party.

(9) Second Party shall make an inspection prior to expiration of the guarantee period and report on observable defects of materials and workmanship by the contractor under his contracts.

ARTICLE III.

1. First Party promises and agrees to pay to Second Party for performance of Architect's services hereunder a fee which shall be a percentage of the total cost to First Party of such projects and improvements for which such services are performed. The percentage fee rate shall depend upon the total cost as defined hereinafter, of such aforesaid projects and improvement covered by this Agreement, and shall be determined as follows: If the total cost of all such projects and improvements is $150,000.00, or more, the fee rate shall be 6% - if the total cost of all such projects and improvements is $50,000.00, or less, the fee rate shall be 7% - if the total cost of all such projects and improvements is between $150,000.00 and $50,000.00, the fee rate between 6% and 7% shall be computed by direct proportionate interpolation. Payments to Second Party on account of said fee shall be made by First Party as follows:

(a) Upon completion and approval of the preliminary studies and sketches, the first payment shall be due the Second Party, which payment shall be a sum equal to twenty five percent (25%) of the total fee, based on the estimated cost as approved by First Party.

(b) Upon completion by Second Party and acceptance by First Party of the final plans, specifications, working drawings and of services to be performed by Second Party through the receiving of Contractors' bids, and after the opening and tabulation of bids, and upon the acceptance of a bid for such project, then the Second Party shall be paid a sum which, together with the amount theretofore paid under (a) above, shall be equal to seventy five percent (75%) of the total fee based on the lowest bonafide bid or bids received by First Party on which the award is made.

(c) If the lowest of the bids that could be accepted as made by the contractors exceed the architect's estimate by more than twenty five percent (25%) on all or any parts including alternates and the First Party does not elect to let contracts on such bids or on any alternate or on any part of such work and if First Party then elects not to proceed with such work or any parts thereof, Second Party shall be paid a sum which, together with the amount theretofore paid under (1) above, shall be equal to seventy five percent (75%) of the total fee based on the cost of improvements as indicated by the aggregate of the architect's estimate on the various parts, if any, of the work to be discontinued but if First Party elects to call for a replanning or a resubmitting of such work for additional bids, then Second Party shall perform the necessary work of re-planning and obtaining approval of First Party as to the new and changed plans and specifications with Second Party giving First Party an estimate of the cost of such improvements as revised and with Second Party providing for the purpose of obtaining bids on the new work and the new alternates or parts as may be determined by First Party that it will proceed with such new work and new plans to be considered the originals and to take the place of the first plans, all at no additional cost to First Party, and with the procedure thereafter being the same as if said new plans were the first and only plans submitted insofar as the contract between the parties hereto is concerned.

(1) The portion of the above provided first and second payments attributable to parts of the improvements to be discontinued, if any, shall be carried separately in all further accounting from the portion attributable to the parts of the improvements to be continued.

(2) As to any part of the whole of the improvements which might be discontinued after receipt of bids, First Party shall be entitled to possession and full benefit of drawings, specifications and other documents prepared therefor and to use them in the future in any way First Party may elect; to which end Second Party shall deliver to First Party either the originals or one reproducible cloth reproduction of all the working drawings for the parts of the improvements then discontinued. Payment as above provided for services previously performed for the then discontinued parts of the improvements shall constitute payment in full for services therefor and this contract with respect thereto shall terminate.

(3) In the event First Party should elect to discontinue further work on all or any part of the improvements after receiving bids and should thereafter decide to proceed with all or any part of said discontinued work or improvements and should employ Second Party for the purpose of calling for bids and otherwise acting as architect on such work or improvements, then and in such event Second Party shall proceed as the architect in connection therewith and shall be entitled to the fees in accordance with the terms and provisions hereof except that his fees shall be credited with the amounts paid to him under the terms and provisions of

this contract on the part or parts theretofore discontinued, but later revived. Second Party's fees shall be based on the bids or contracts received after the decision to revive such part or parts of the work or improvements theretofore discontinued.

(d) The remaining twenty five (25%) of the architectural fee shall be paid as follows: After the execution of the contracts for the improvements and during the performance of supervision services by Second Party, periodic partial payments on account of the balance of said fee for supervision of the work not previously discontinued after receipt of bids, shall be made in proportion to and at the same time as the net partial payments made to the contractors for the improvements. The final installment on the said fee shall be paid after completion and acceptance of the improvements and shall be the previous-fixed percentage of the finally determined cost of the improvements, less the aggregate of all previous payments on account of the said fee for work not previously discontinued.

(e) First Party may abandon or postpone the further planning or construction of the improvements at any time, or may discontinue the employment of Second Party under this agreement, in either of which events Secon Party shall be equitable compensated for the parts of his services previously rendered satisfactorily.

(f) First Party may choose to take bids on and award plumbing, heating, ventilating and electrical contracts separate from general construction contracts, in which event the services of Second Party shall be performed so as to permit and facilitate such segregation of contracts. The exercise of such option by First Party shall not affect the fee rate as provided herein.

2. Second Party agrees to the following procedure governing the repeated use of plans.

(a) When authorized in writing by First Party, the plans and contract documents prepared by Second Party under this agreement may be used, to be performed by Second Party to construct the identical facilities on other sites of First Party. For this repeated use of completed plans with necessary site revisions on other sites, First Party promises and agrees to pay to Second Party for performance of architect's services hereunder an additional fee of 3½% of the cost to First Party of such project and improvements so constructed by the repeated use of the original plans.

(1) The portion of the above fee of 3½% due and payable upon the award of a construction contract shall be 2% of the cost of the improvements, based upon the amount of the contract award.

(b) After the execution of contracts for the improvements and during the performance of supervision services by Second Party, periodic partial payments on account of the balance of said fee for supervision of the work not previously discontinued after receipt of bids, shall be made in proportion to and at the same times as the net partial payments made to the contractors for the improvements. The final installment on the said fee shall be paid after completion and acceptance of the improvements and shall be the previously fixed percentage of the finally determined cost of the improvements, less the aggregate of all previous payments on account of the said fee for work not previously discontinued.

(c) Where repeated plans are used that necessitate changes in said repeated plans other than provisions as to site requirement, the party of the Second Part shall be compensated for additional services brought about by such changes on a reasonable basis.

ARTICLE IV.

1. The cost of the said improvements, for the purpose of computing the said fee, shall be the aggregate cost to First Party of the basic general, plumbing, heating, ventilating and electrical contracts and only such other construction or equipment contracts for which First Party may, by specific separate authorization, instruct Second Party to perform architect's service hereunder, subject to the following stipulations:

(a) Such cost of the improvements shall not include the cost of fixed and/or connected equipment or non-fixed furnishings such as laboratory, shop, kitchen, cafeteria and stage equipment, seats, chairs, desks and tables not authorized for inclusion in the above named basic contracts unless Second Party shall be specifically further authorized by First Party to prepare bidding and contract or purchase documents therefor and to administer their purchase and supervise their installation. Such cost of the improvements shall include the site improvement such as may be authorized by First Party to be included in the above named basic contracts, such as walks, fencing, surfaced play areas and sewage disposal facilities; but shall not include the cost of landscaping work such as topsoil grading, sodding, planting and playground equipment if not specifically authorized by First Party for inclusion in the above named basic contract.

EXHIBIT I-C

(b) Such cost of the said improvements shall not include any payments to Second Party nor the cost of land.

(c) First Party may employ other architects, landscape architects, engineers, contractors or other specialists for services in connection with further improvements, at the same school locations, other than those for which Second Party is employed hereby; in which event, the services of Second Party shall be performed so as to coordinate with those of such others; and the cost of such other improvements not planned or supervised by Second Party will not be included in the cost of the improvements hereunder.

ARTICLE V.

1. The services of professional registered civil, structural, mechanical and electrical engineers, satisfactory to First Party, will be required for the design, working drawings and specifications, pertaining to the site work, structural framing, plumbing, heating, ventilating, electric wiring and lighting. The names of such engineers as Second Party will employ shall be submitted in writing to First Party as soon as practicable after execution hereof, and no such engineer unacceptable to First Party will be employed. The compensation of such engineers shall be paid by Second Party.

ARTICLE VI.

1. The information shown on all working drawings and specifications prepared by Second Party shall become the property of First Party and any innovation of planning submitted by Second Party may be adopted by First Party and used by First Party in any project of First Party.

2. In addition to the reproduction and distribution of bidding and contract documents by Second Party as hereinabove provided, Second Party shall furnish and deliver to First Party, one (1) blueprinted or otherwise acceptable reporduced set of finally approved working drawings, specifications and all bidding and proposed contract documents at the time of advertising for bids and one (1) additional such set after execution of contracts; then, at completion and acceptance of the improvements, one (1) set of reproducible reporductions, in a form approved by the First Party, showing modifications due to addenda and change orders, the exact location of all new on-site utilities.

3. Second Party shall furnish and deliver to First Party, such number of reproductions of preliminary studies as may be required to facilitate and expedite their examination and approval.

4. All reproduction and distribution of drawings, specifications and other documents, up to 20 copies, for examination, for bidding, for contract record, for construction use and for the reference files of First Party shall be accomplished by and at the expense of Second Party.

ARTICLE VII.

1. Surveys, soil explorations and laboratory tests, if the necessity therefor be approved by First Party, shall be furnished or paid for by First Party under the following conditions:

   (a) If Second Party deems it necessary to have a survey of the building site, giving grades and lines of streets, pavements and adjoining properties; the rights, restrictions, easements, boundaries, and contours of the building site, and location of trees, sewer, water, gas and electric services, he shall so advise First Party, and upon its concurrence, a survey or surveys showing such information shall be furnished by First Party at its expense; or, if First Party wishes Second Party to do so, Second Party will arrange for such surveys at the expense of First Party on a prearranged basis of compensation.

   (b) If, in the judgment of Second Party, subsoil conditions need to be determined by borings or test pits, Second Party shall advise First Party, and upon its concurrence, such borings or test pits, as may be authorized, will be arranged for by Second Party at the expense of First Party on a prearranged basis of compensation.

   (c) If Second Party deems independent testing laboratory services necessary in connection with concrete or other materials, and considers that such services should be employed directly, the First Party shall be so advised, and upon its concurrence arrangements will be made by Second Party at the expense of First Party for such testing laboratory services on a prearranged basis of compensation.

ARTICLE VIII.

1. If Second Party is required to re-perform services which have previously been satisfactorily performed and approved and the necessity for such re-performance of services arises from changes in the size or scope of the improvements required specifically and knowingly by First Party, the Second Party shall be entitled to just and equitable compensation therefor; provided however that none of the changes or corrections which may be required prior to approval of preliminary studies and authorization for the beginning of working drawings and specifications shall be considered cause for extra compensation to Second Party.

2. If Second Party, through collaboration with other project architects, who may be employed by First Party on similar concurrent projects, is enabled to use identical work in the form of drawings of basic plans, specifications, details and engineering data as may be incorporated in other project working drawings and specifications, and in so doing is saved the "cost of production," of said basic plans, specifications, details and engineering data, the, such saving shall accrue to First Party.

"Cost of Production" shall be the actual cost of drafting and stenographic salaries, engineering fees and overhead directly attributable to the work which may be incurred by Second Party in merely duplicating identical work as above described.

The amount of such saving accruing to First Party shall be determined by the actual cost records to be kept by the project architect in accordance with the foregoing Articles of Agreement.

3. No deductions shall be made from the fee of Second Party on account of liquidated damages or similar sums which First Party might be entitled to withhold from payments otherwise due to Contractors.

ARTICLE IX.

1. Second Party represents that at the time of the execution of this document, that he and those associated with him have in force Errors and Omissions insurance in the amount of not less than $100,000.00.

2. Second Party warrants and represents to First Party that he and those in his employ and associated withhim in the performance of the services required under this contract have the requisite degree of learning, skill and experience as is necessary and sufficient to qualify him to do the work required under thiscontract and that Second Party will use reasonable and ordinary care and diligence in the exercise of his skill to accomplish the purpose of this contract.

ARTICLE X.

1. The partners, successors, executors, administrators and assigns of each party to this agreement are hereby bound to the partners, successors, executors, administrators and assigns of the other party in respect to all covenants of this agreement. Except provided for in other Articles of this contract, neither party hereto shall assign, sublet or transfer the interest of such party in this agreement without the written consent of the other.

ARTICLE XI.

1. All questions in dispute under this Agreement shall be submitted to arbitration at the choise of either party.

IN TESTIMONY WHEREOF, the parties hereto have caused this instrument to be executed in triplicate, each to have the force and effect of an original, on this ________________ day of __________________________, 19______.

HOUSTON INDEPENDENT SCHOOL DISTRICT
FIRST PARTY

ATTEST:

______________________________ By ____
Secretary of its Board of Education **President of its Board of Education**

APPROVED:

______________________________ By ____
Attorney for Board of Education **Second Party**

EXHIBIT I-C

EXAMPLE

HOUSTON INDEPENDENT SCHOOL DISTRICT
HOUSTON, TEXAS

July 2, 1965

Wieb and Walla, A. I. A.
1741 Temple Court
Houston, Texas

Dear Sirs:

Transmitted herewith are six copies of the Architect's Contract for the following project:

> A replacement of MacGregor Elementary School,
> 4801 LaBranch Street, Houston, Texas.

Please execute these documents and return to us for further processing. If we can be of any assistance, please call on us.

Very truly yours,

EXHIBIT I-D

EXAMPLE

HOUSTON INDEPENDENT SCHOOL DISTRICT
HOUSTON, TEXAS

July 14, 1965

______________________,
Business Manager
Houston Independent School District

Subject: Architect's Contract
MacGregor School Replacement

Dear Sirs:

Transmitted herewith are six copies of the Architect's Contract from Wieb and Walla, Architect, pertaining to the captioned project. Also attached is their letter of July 12, 1965 regarding Errors and Omissions insurance.

Your cooperation in further processing of this contract is appreciated.

Very truly yours,

EXHIBIT I-E

EXAMPLE

HOUSTON INDEPENDENT SCHOOL DISTRICT

SCHEDULE OF BASIC PHYSICAL AND EDUCATION REQUIREMENTS

NEW ELEMENTARY SCHOOL
(Allow 750-800 square feet floor space for classroom)

PHYSICAL REQUIREMENTS	EDUCATIONAL SPECIFICATIONS
Unit	**Description**
1 Kindergarten (1 - 1/2 C.R.) 1 Primary (1 - 1/2 C.R.) Capacity - 40 each	a. Location- should have easy access to outside walk to facilitate pick-up and delivery by parents; off secondary street if possible. On ground floor in multiple story buildings. b. Self-contained unit where emphasis is placed on helping the five-year old make transition from home dependency to the relative self-sufficiency of the first grade. c. A room of near equal dimensions affords maximum supervision and flexibility for a variety of activities. d. Restrooms - boys and girls - to serve unit and be an integral part of the design. e. Provide adjacent fenced play area, well-drained, approximately 3000 sq. ft. f. Design should reflect sense of order in both design and detail.
29 Classrooms (4 of these classroom spaces for team teaching) Capacity - 36 each	a. Location- So arranged as to provide ease of pupil flow, supervision and relationship to central facilities b. Should provide for flexibility in the use of space so as to accommodate the varied activities of the school program. c. Adaptability of the room to various grade levels is provided through the size and arrangements of the furnishings. d. Team teaching rooms should be designed with the fewest sound-reducing operable walls possible. The complex must also be arranged so that the spaces can be used as standard classrooms. e. Provide television outlets for all classrooms, library, cafeteria and principal's office.

EXHIBIT I-F

PHYSICAL REQUIREMENTS	EDUCATIONAL SPECIFICATIONS
1 Library plus workroom (1-1/2 C.R.)	a. Location- Easily accessible for public use and adjacent to team teaching area. b. Serves as a distribution center for printed, audio and visual materials. c. Should provide functional and inviting physical environment designed for reading, browsing, and study; group and individual use of all types of materials as well as for the technical processing of these. d. Workroom with cabinets, counter and sink, storage space for Audio-Visual equipment. e. Shelving--high wall shelving wherever possible. minimum 400 running feet for average book size; 100 running feet for picture book size. f. Air conditioned.
Administrative Suite .. General office .. Principal's office .. Clinic Recovery room Restroom Office .. Bookroom .. Storeroom .. Conference room .. Workroom .. Multipurpose room	a. Location- Near main entrance to building, accessible to public, parents and visitors without having to pass through other areas of building. b. General office to provide circulation for teacher check-in and -out with access to mail boxes. c. Principal's office (12' x 14', approximately) adjacent to general office. d. Space for parent or visitor waiting room with combination service counter and storage for secretary. e. Clinic in outside room if possible with visibility from secretary's position. f. Separate toilet facilities for clinic and principal's office. g. Bookroom and workroom adjacent to general office. h. Administrative area air conditioned. i. Multi-purpose room to be used as classroom or divided (by operable partitions) into two or more offices.
1 Cafeteria-Kitchen (4000 sq. ft. approx.) Seating capacity-300 to 400 .. Dining-assembly area .. Stage .. Kitchen .. Storage	a. Location- So as to reduce to a minimum the noise in relation to the classroom area. b. Food service area separate from dining area and arrange to provide maximum turnover of students passing through without bottlenecks either in serving or paying. c. Stage to have permanent risers in front and entrances off hallway near classrooms that will serve as dressing rooms. d. Provide service area for delivery of food supplies. e. Provide locker space and toilet facilities for cafeteria personnel.

EXHIBIT I-F

PHYSICAL FACILITIES	EDUCATIONAL SPECIFICATIONS
Common Facilities	
..Boys' restroom ..Girls' restroom ..Teachers' restroom and lounge Custodian's storage	a. Location- Boys' and girls' restrooms placed for minimum disturbance to classrooms. b. Design teachers' lounge and restrooms as separate units. c. Custodian's storage near service area to facilitate delivery. d. In multi-story buildings provide teacher and student restrooms on each floor. e. Provide locker space and toilet facilities for custodial personnel.
Site Work ..Paved play area (75' x 150')	a. Paved play area accessible by all-weather walks. b. A six foot fence to enclose campus. c. Sidewalks above finish grade to allow adequate drainage. d. Faculty parking for 50 cars on sites with adequate space. e. Fenced bicycle parking area (200). f. Entire campus to receive finish grading ready for planting with areas adjacent to buildings sprigged. g. Softball backstops, two, each 10' high and 10' across back with 10' wings, constructed of eight gauge wire chain link fencing.

EXHIBIT I-F

HOUSTON INDEPENDENT SCHOOL DISTRICT

LIST OF MINIMUM STANDARDS
RECOMMENDED FOR ELEMENTARY SCHOOLS

I. CLASSROOM FACILITIES (Regular)

a. Floor	Asphalt tile, or equal, approximately 750 sq.ft.
b. Ceiling	Acoustical tile - where appropriate.
c. Lighting	60 foot-candles at desk top. Individual switches for each row of lights. Controls at entrances.
d. Electrical Outlets	Four to be installed as follows: One near floor at front of room; one at back of room; one above chalkboard for electric clock and one in corridor wall.
e. Wall (below chalkboard)	Tile, plaster, or spectra glazed tile.
f. Windows	Double-hung, with upper third translucent. Metal, with pane size not to exceed 16" x 42". Tinted glass in windows.
g. Window Shades	Appropriate for type window, material to match HISD stock.
h. Transoms and Ventilators	Vertical louvers on corridor wall; also same underneath chalkboard at floor level.
i. Chalkboards	Slate, 42" in width, 24" minimum height (varies with metal-wood trim) above floor and extending length of two walls.
j. Tackboards	Desired; one, 3' x 4', cork, to be placed at window wall; one, 4' x 12' to 14', placed next to cupboards; one, 15" wide (clear), placed above chalkboards. (No plastic coating on tackboards)
k. Map and Chart	Minimum of 12' mounted above chalkboards. (Nystrom or equal)
l. Walls	Movable-sound proofed in team-teaching complex. Square shaped 4 room team-teaching complex. Masonry or plaster (operable as per program)

EXHIBIT I-G

m. Storage Cabinet (Classrooms)	Sloping shelves at bottom of storage for 24" x 36" chart paper. (Might be included in teachers' cabinet).
n. Clock	10" electric clock to be hung above chalkboard. To be furnished by HISD.

II. KINDERGARTEN-CLASSROOM

a. Dimensions	Approximately 30' x 36' each
b. Restrooms	Girls' and boys', facilities to serve unit. Two faucets on lavatory.
c. Storage	Special
d. Location	Should have easy access to outside walk and paved play area where site permits.

III. CAFETORIUM

a. Auditorium	To seat 400; lunchroom facilities to accommodate 250.
b. Lavatory	One two-faucet, cold water unit.
c. Storage room (for chairs)	Shelving 30" up to 5' on one wall; 12" shelving above 5' on two walls.
d. Windows	Double-hung, 50% of glass to be flexible to permit flow of air. Bottom panel to be solid material.
e. Window shades	Opaque material.
f. Stage	Apron of stage to extend 12" beyond front wall; all steps to be 12" wide and extend continously along front and around projecting sides of stage.
g. Screens	On all windows and doors.
h. Electrical outlets	One at center of first step riser; one at right of stage near floor; one each at right and left rear of stage.
i. Speaker outlets	One at center of first step riser; one at right of stage near floor; one each on front wall at right and left of stage, 10' above floor and 4' from stage opening.

EXHIBIT I-G

j. Doors	Exit doors on two sides for safety of children.
k. Stage lighting	Two rows of lights on separate switches; each row to have no less than 18 sockets.
l. Clock	12" dial clock to be placed on wall opposite stage.
m. Chalkboard	One, 4' x 4', to be placed near kitchen where service line begins.
n. Tackboard	One 2' x 3', to be placed near kitchen and service line; one, 4' x 12', to be placed on each of the two open wall spaces.
o. Picture Molding	May be special tile, wood strip or recessed type, at least running 40' in appropriate locations.
p. Floor	Asphalt tile, dark color.

IV. KITCHEN

a. Floor	Terrazzo, with floor drain.
b. Storeroom	Finished concrete floor, with floor drain.
c. Equipment	To be specified by Lunchroom Director, Deputy Superintendent and Business Manager. Adequate electrical outlets.

V. OFFICE SUITE

a. Principal's Office	Area to be approximately 15' x 16' , with four 110V outlets. Toilet facilities.
b. Secretary's Office	Two entrances from corridor; one 4' x 4' tackboard; two 110V outlets. One counter; width of office.
c. Clinic	Area to be divided by glass window partitions. Curtains to be suspended on curtain rod. Cabinet doors to be hinged. Toilet facilities.
d. Library	1. Size - 30' x 50' minimum. 2. Bulletin board - 4' x 4', over card catalogue to be made of peg board and conform to ceiling height.

EXHIBIT I-G

	3. Shelving-regular shelving - to be 10" deep, adjustable, with 36" maximum span and 5'6" high. Bottom shelf to be slanted. 4. Picture book shelving along entire window wall to occupy exposed wall area below window sills; also island-type picture book shelving. 14" clearance between shelves, upright partition every 8". 5. Remaining shelving to occupy entire length of three walls except for doorways and the bulletin board.* 6. Electrical outlets - 110V duplex receptacle in baseboard of shelving on each wall of reading room except window wall. One outlet for individual 10" wall clock.
e. Teachers' Workroom. Additional Workroom for Library	1. Work counters - one with formica top to be 24" deep, 30" high and placed along wall below windows. Section below sink to be closed with doors, the remaining part to be open for work table. Entrance for hallway. 2. Sink - 18" x 24", located in top of work counter with formica top. 3. Book shelves - adjustable, 9-1/2" deep, with sliding doors, above 36" counters. 4. Storage cabinet - 26" deep, 40" wide and 36" high, to have shelving and drawer for filmstrips (separators to be parallel strips, 1-3/4" apart and 1/2" high) 5. Electrical outlets - one 220V outlet to serve kiln (specifications to be provided by Art Department) 6. Art (Kraft) paper dispenser.
f. Audio-Visual Storeroom (Separate from bookroom)	One cabinet, 3' x 3' x 1', with shelves spaced 6", 6", 8" and 12" apart. Additional shelving along one wall to be 5' x 30", spaced at 15", 24" and 30" heights. Install partitioned filmstrip drawer.
g. Book Room	Approximately 350 to 400 sq.ft. floor area, with shelving to ceiling and island shelves where possible. To have dutch door, work cabinet and one convenient electrical outlet. To be well ventilated and lighted. Locate adjacent to principal's suite. Shelving to be deep enough to accommodate two depths of books.
h. Two Conference Rooms	Located to permit privacy. Could be located in area away from office unit.

* See attached sketch of library shelving

EXHIBIT I-G

VI.	TEACHERS' LOUNGE	
	a. Restrooms	Separate entrances from corridors to men's and women's restrooms. Well ventilated, forced. Centrally located.
	b. Electrical outlets	One 220V in teacher's lounge Four 110 V outlets.
VII.	PUPIL RESTROOMS	
	a. Floors	Terrazzo, with cove base.
	b. Walls	Glazed tile or structural tile wainscot to 5'10" high.
	c. Partitions	Girls' restrooms should have partitions with doors; boys' should have partitions without doors.
	d. Commodes	Provide sufficient number of standard, floor-mounted type fixtures to meet sanitary code requirements for schools. One for 30 pupils.
	e. Lavatories	Two per restroom
	f. Urinals	Sufficient number to meet Code. Forced ventilation for restrooms where natural ventilation cannot be provided.
VIII.	HALLWAYS AND CORRIDORS	Double-loaded corridors
	a. Walls	Glazed tile, glazed structural tile, or spectra glazed tile, with no protrusions
	b. Dimensions	Sufficient to meet traffic demands
	c. Floor	Terrazzo tile
	d. Vestibules, lobbies	At entrance hall and at end of corridors on north and west exposures.
	e. Lighting	Artificial lighting, not recessed, no sky lights. Adequate. Do not use clip-on fixtures.
	f. Display case	One, approximately 4' x 5', with glass doors, to be recessed in wall.
	g. Fountains	Recessed, three-bubbler type, with provisions for refrigeration. Facility to be located in each hallway serving as many as 6 classrooms, and next to storeroom where possible. Provide for remote cooling unit with 110V outlet and drain.

EXHIBIT I-G

h. Tackboards	6' to 8' in length, approximately 2 per corridor with 10 to 14 classrooms. Note: No glass-enclosed tackboards (no more than 1).
i. Picture Molding	May be special tile, wood strip or recessed type, at least running 50' in appropriate locations.
j. Fire Alarm Gongs	One gong per corridor, or as many as needed to be heard in all parts of school. All to be located inconspicuously and away from good display area.
k. Electrical Outlets	As needed in hallways; not near outlets in classrooms, etc.
l. Corridors	No open end corridors.

IX. BUILDING ENTRANCES

a. Size	Entrances at ends of main corridors to classroom sections to have 4' x 20' slab below.
b. Canopy	Entrance slab to have canopy above.
c. Doors	Safety glass in all exterior doors and in side lights, if used.

X. CUSTODIAN'S ROOM

a. Storage	Cupboards for mops and brooms, and for 16' ladder and safety patrol poles. Fireproof cubicle attached to building for lawn mower and edger, gasoline, etc.
b. Shelving	Deep and narrow shelves for supplies, closed.
c. Mop Sink	Wall-hung type
d. Transformer	Place in tool room or boiler room.

XI. CAMPUS

a. Hard Surface Play Area	Asphalt area not to exceed 11,250 sq. ft., located adjacent to nearest general exit. Should have 9" crown to provide for rapid drainage. Two hard surface areas for schools over 1000. All weather walks.
b. Volley Ball Standards	Two sets

c. Softball Backstops	Two, each 10' high and 10' across back with 10' wings. Each backstop to be constructed of 8 gauge (wire) chain-link fencing, mounted on frames made of 2" I.D. galvanized metal pipe for outside posts and 1-1/4" I.D. galvanized pipe for top of middle rails. Posts to be set in concrete 30" below ground surface.
d. Electrical Outlets	One to be placed near hard surface play area, and two on exterior walls at positions to serve outside areas.
e. Fence	Enclose grounds. 6' high fence. Cross fencing to allow playground with building protected
f. Incinerator	Metal type, including stack located properly to avoid interference with classroom program and administration.

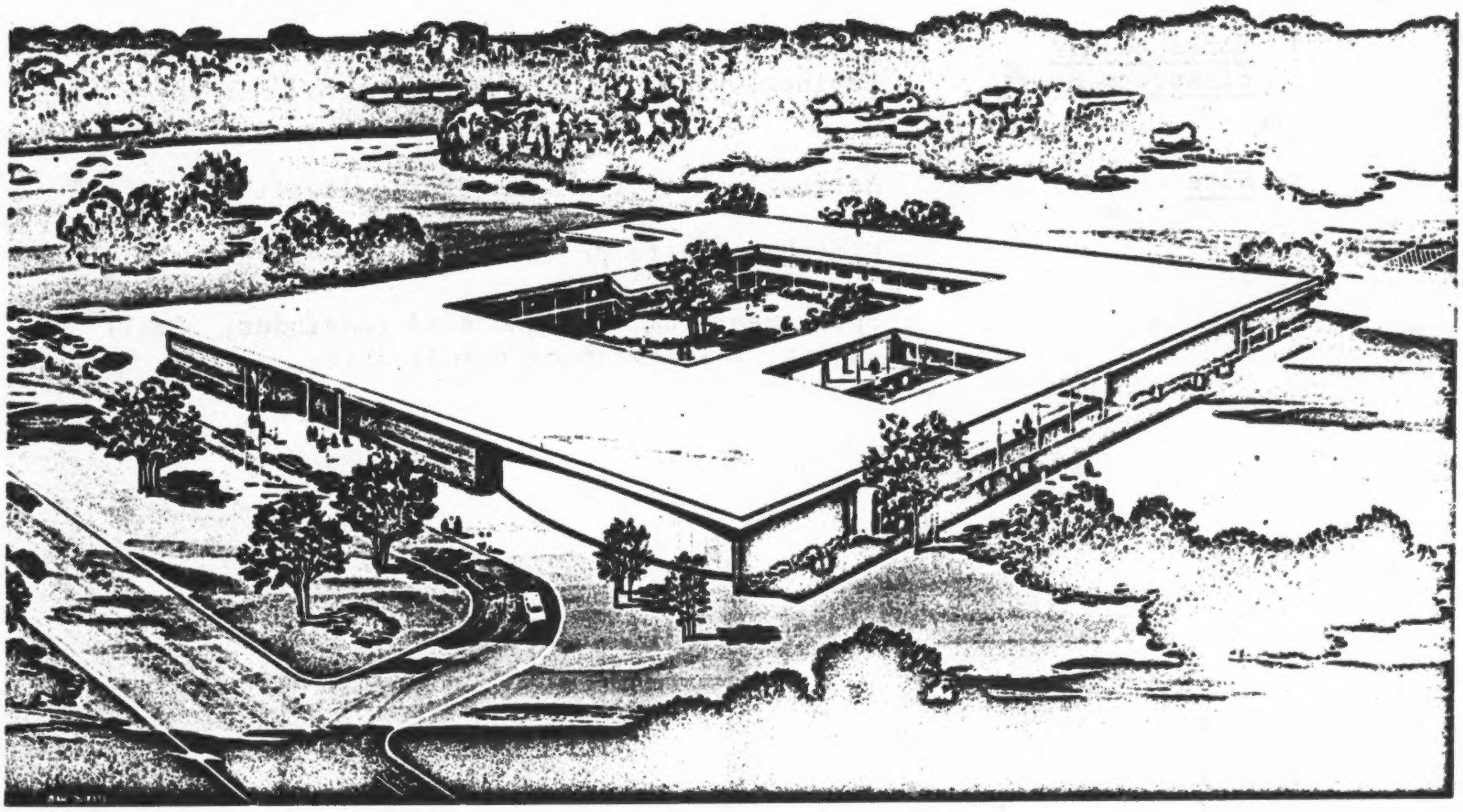
XII. GENERAL PROVISIONS

a. Classroom Wings	Should have double loaded corridors.
b. Windows	Oriented to north and south.
c. Faculty Parking Lot	Black top. One per school personnel plus 5 additional.
d. Bicycle Parking	To be fenced and provided with gate which can be locked. Located near walk-through space on building side of fence (to be determined by staff).
e. Clock System	Office clock with buzzer system throughout all classrooms, cafeteria, library, and on outside walls - central control button needed.
f. Heating system	Steam or hot water, located away from office and classrooms.
g. Colors	1. Walls - use minimum number; warm colors on north and east; cool colors on south and west . 2. Ceilings- use light tones. 3. Floors - use one color per room; two to three colors per building.

EXHIBIT I-G

h. Water	Provide hose bids to permit watering of lawn and window washing. Maximum distance not to exceed 200' around perimeter of building. Water bubblers near playground.
i. Locks on all classroom doors	Keyed to building Master. Teacher's storage cabinets keyed to room and master.
j. Site	Astro-clock to turn on outside lighting. Finish grade to provide adequate drainage. Sprig near building and seed remainder. Small amount of landscaping permissable.

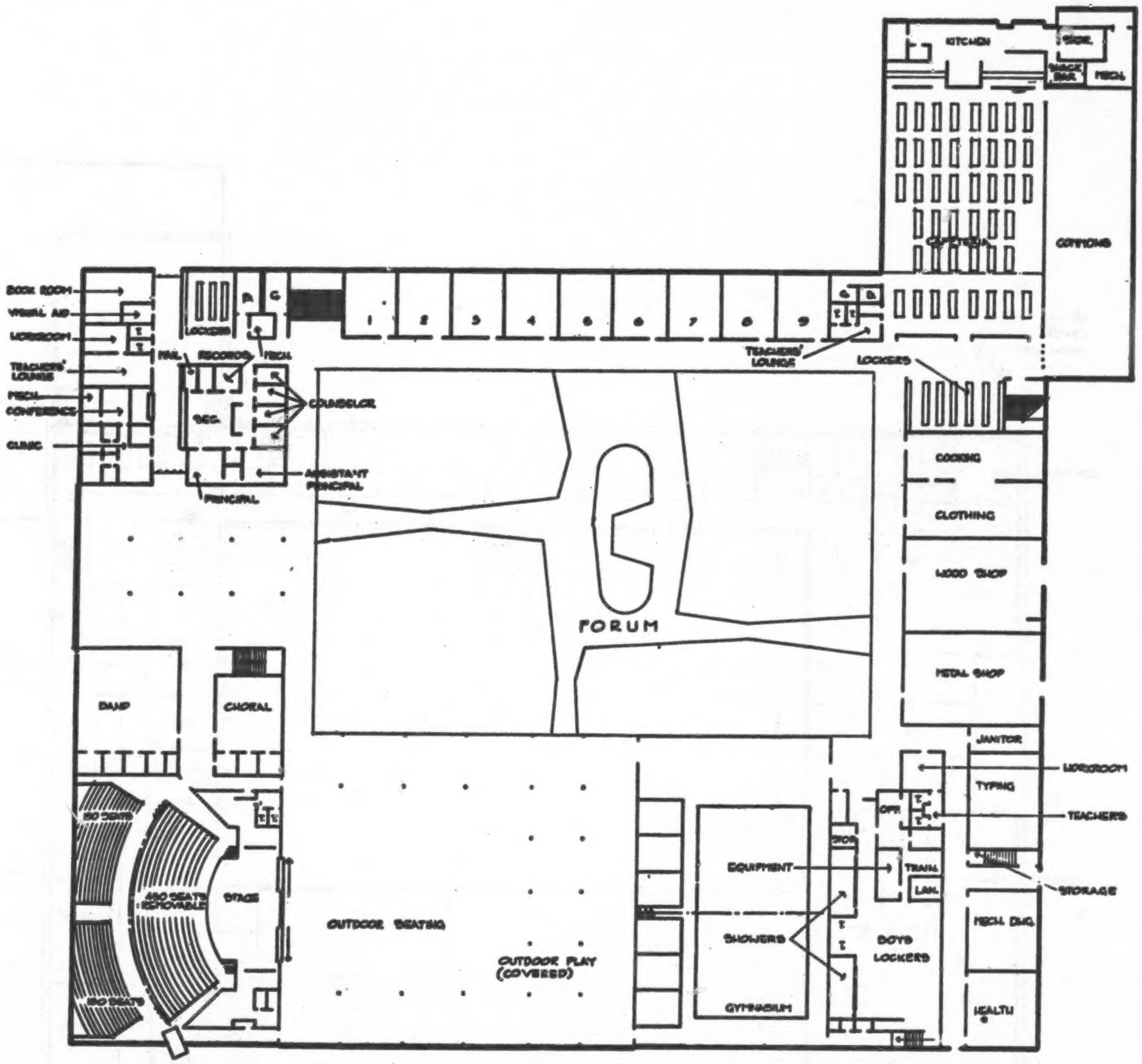
EXHIBIT I-G



PATRICK HENRY JUNIOR HIGH SCHOOL
HOUSTON INDEPENDENT SCHOOL DISTRICT

KOETTER THARP and COWELL A.I.A. ARCHITECTS

EXHIBIT II-A


KITCHEN
STOR.
SNACK BAR
MECH.
CAFETERIA
COMMONS
BOOK ROOM
VISUAL AID
WORKROOM
TEACHERS' LOUNGE
MECH.
CONFERENCE
CLINIC
LOCKERS
B
G
MAIL
RECORDS
MECH.
SEC.
COUNSELOR
ASSISTANT PRINCIPAL
PRINCIPAL
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6
7
8
9
TEACHERS' LOUNGE
LOCKERS
COOKING
CLOTHING
WOOD SHOP
METAL SHOP
FORUM
BAND
CHORAL
150 SEATS
450 SEATS REMOVABLE
150 SEATS
STAGE
OUTDOOR SEATING
OUTDOOR PLAY (COVERED)
EQUIPMENT
SHOWERS
GYMNASIUM
STOR.
OFF.
TRAIN.
LAN.
BOYS LOCKERS
JANITOR
WORKROOM
TYPING
TEACHERS
STORAGE
MECH. DWG.
HEALTH

FIRST FLOOR PLAN
scale

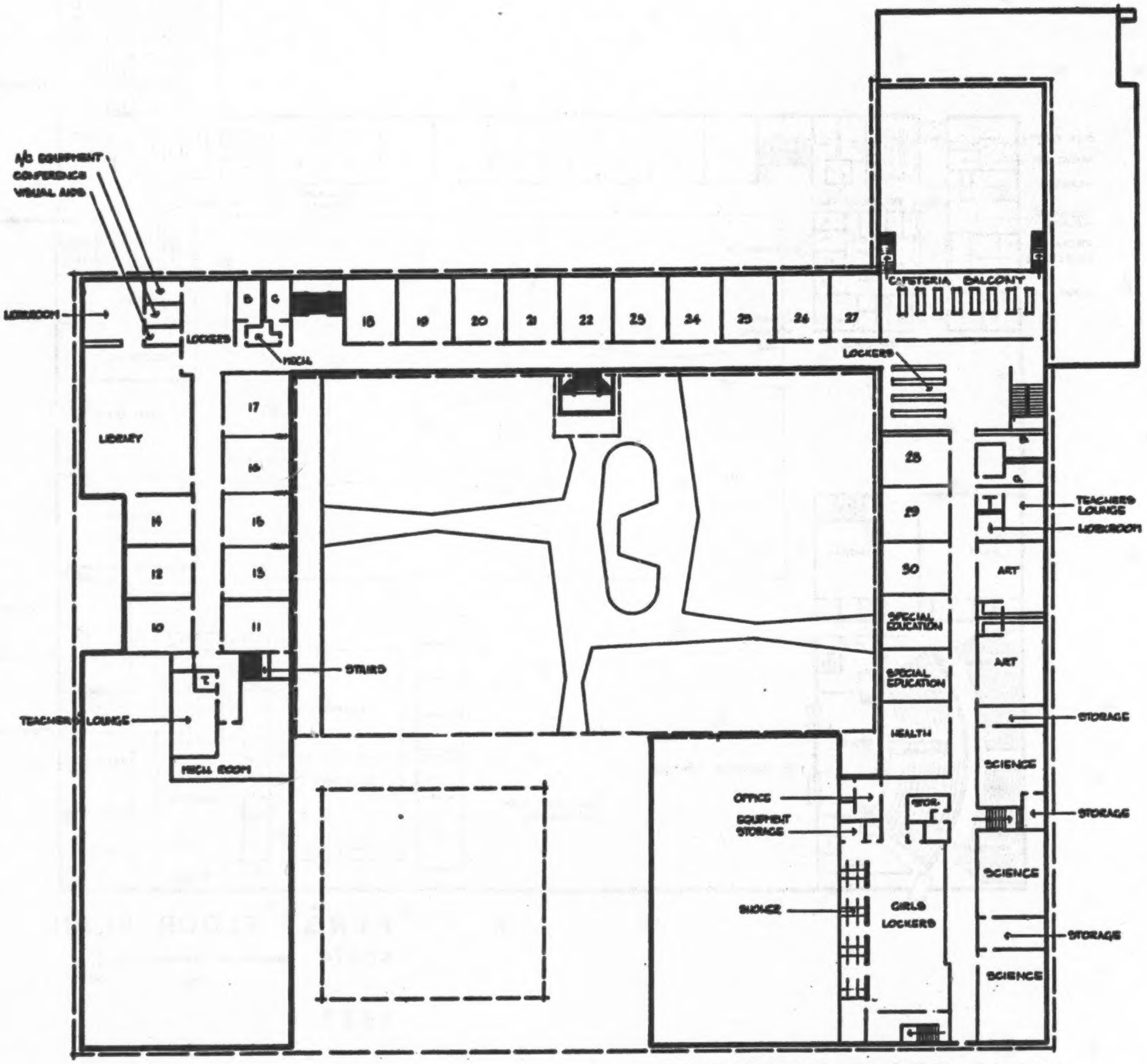
50 100

1965

PATRICK HENRY JUNIOR HIGH SCHOOL
HOUSTON INDEPENDENT SCHOOL DISTRICT

KOETTER THARP and COWELL A.I.A. ARCHITECTS

EXHIBIT II-A


A/C EQUIPMENT
CONFERENCE
VISUAL AIDS
WORKROOM
LOCKERS
B
G
MECH.
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26
27
CAFETERIA BALCONY
LOCKERS
LIBRARY
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16
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15
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10
11
STAIRS
T
TEACHERS LOUNGE
MECH. ROOM
28
29
30
SPECIAL EDUCATION
SPECIAL EDUCATION
HEALTH
B
G
TEACHERS LOUNGE
WORKROOM
ART
ART
STORAGE
SCIENCE
STORAGE
SCIENCE
STORAGE
SCIENCE
OFFICE
EQUIPMENT STORAGE
STOR.
SHOWER
GIRLS LOCKERS

SECOND FLOOR PLAN
scale
1965

EXHIBIT II-A

HOUSTON INDEPENDENT SCHOOL DISTRICT
John W. McFarland, Superintendent
1300 Capitol Avenue
Houston, Texas

PATRICK HENRY JUNIOR HIGH SCHOOL
ARCHITECTS: KOETTER, THARP AND COWELL, A.I.A.
CONSULTING ARCHITECT: CAMERON FAIRCHILD & ASSOCIATES, A.I.A.

BASIC CONSIDERATIONS RELATED TO THE DESIGN

Site

The site is a "T" shaped tract of approximately twenty-two acres bounded by Little York Road, East Hardy Street, and Skinner Street. The entrance to the school is on East Hardy Street.

Zoning

The elements of the building are arranged in such a way that teaching areas such as the band hall, choral rooms, gymnasium, and craft shops, as well as the cafeteria and commons, are spearated from the quiet teaching spaces. The academic classrooms, library, laboratories, and administrative suite are zoned as quiet areas.

Ventilation

The elements of the building are oriented ina direction where the prevailing breeze is funneled into a large central court and then into other teaching spaced. The openness in thewalls on the south side of the building provides for thru-ventilation and also provides a view from the central court through the covered play space and out to the school playfield.

BASIC SCHOOL AREAS

Entrance Area and Central Court

The spacious covered entrance area and the central court provide places for the students to congregate as they arrive for classes in the morning and as they depart in the afternoon. The school administrative offices, as well as the gymnasium and auditorium, are easily accessible from the covered entrance.

Administrative Suite

The administrative suite, containing the principal's office, counselors' offices, conference rooms, and teachers' workrooms, is the nerve center for the entire school. The location of the offices facilitate direct visual supervision of the entire central court and the school corridors.

EXHIBIT II-A

PATRICK HENRY JUNIOR HIGH SCHOOL
BASIC SCHOOL AREAS (Continued)

Auditorium and Gymnasium

These large assembly spaces will be used for more than the conventional purposes. They will be available to adult groups for special events as well as to the students for athletic and dramatic events. The auditorium and gymnasium are connected by a large roofed outdoor area which was conceived as a space for organized physical educational activities. This same outdoor area will provide a seating arena for outdoor performances. The rear wall of the auditorium stage, which is adjacent to the roofed outdoor area, consists of large sliding panels which when opened allow for the stage to be used for outdoor performances. It is also anticipated that audience particpation can be from both sides of the stage simultaneously, thus providing a "stage in the round" atmosphere.

Library

The air conditioned library is located where it will provide a restful and quiet atmosphere, conducive to concentration. Because of air conditioning, this space was effectively zoned from the street, play-field, and corridor noises.

Paved Space

The ancient Roman Forum was used as a place for public assemblies and for discussing questions of interest. At Patrick Henry School a courtyard or public square has been designated as a Forum. It is a well-defined space, having both landscaped and paved space with benches where students may gather during free time. Space for total student assembly is provided. The Forum has a controlled environment since the school completely surrounds it, creating and reflecting the school's own image. The use of glass for the walls of the school around the Forum provides a showcase of the classrooms and enables the students in the Forum to see what the other students are doing in the laboratories, workshops and classrooms.

Corridors

The corridors in the school are more than just links between rooms. They form a backdrop, comparable to a small town's main street. Against this backdrop, students mingle on their way to classes many times during the day. The corridors are the key to the personality of a school. They have a cheerful atmosphere, with windows, bright colored walls, and pleasant views of the Forum. From the open corridor on the first floor the opposite side of the building is accessible by way of the Forum. Visually the corridors give a spacious effect unifying all areas and giving the feeling of one big room -- corridors and classrooms. Because of this openness, students may observe their fellow students as they participate in seminars, lectures, and laboratory and craftshop activities.

EXHIBIT II-A

PATRICK HENRY JUNIOR HIGH SCHOOL

AIR CONDITIONING

The library, choral room, band hall, language laboratories, teachers' workrooms, and the administrative area at Patrick Henry Junior High School are air conditioned. Because of the location of the auditorium to the above areas, the auditorium can be air conditioned without additional expense or equipment by diverting the air from those spaces into the auditorium, thus allowing the air conditioning equipment to do two jobs for the cost of one. Simply by turning a valve the auditorium can be cooled for special programs or meetings. All of the remaining spaces except the gymnasium are equipped for future air conditioning.

COST DATA

General Construction		$ 1,315,200
Mechanical (Heating, ventilating, and plumbing)		239,000
Electrical		131,000
Air Conditioning (Library, choral room, band hall, language laboratories, teachers' workrooms, and administrative area)		45,000
Site Work (Including parking, clearing, filling, drains, walks, and landscaping)		90,000
Fixed and Connected Equipment (Kitchen, science, and gym equipment)		58,000
TOTAL COST		$ 1,878.200
Estimate to Provide Air Condition for Remaining Areas		$ 80,000
Square Feet of Building	148,500	
Cost Per Square Foot (Excluding site work and fixed and connected equipment)		$ 11.65

EXHIBIT II-A

EXAMPLE

October 26, 1965

Wieb and Walla, A. I. A.
1741 Temple Court
Houston, Texas

Gentlemen:

This is to advise that the Board of Education at its meeting last evening, October 25, approved preliminary plans and budget estimate for MacGregor Elementary School as presented.

Please proceed with preparation of final plans and specifications for this project on the basis of the approved preliminaries, giving careful consideration to economy and quality of design and construction.

A conference, at an early date, would be desirable to discuss the time schedule and any other matters pertaining to this project.

Very truly yours,

EXHIBIT II-B

INSTRUCTIONS TO BIDDERS

INDEX

A. Bidding Documents
B. Submission of Bids
C. Bid Security
D. Contractor's Qualifications, Experience Record & Financial Statement
E. Interpretations
F. Addenda

A. BIDDING DOCUMENTS

1. In addition to the General Conditions, Specifications and Drawings made available to prospective bidders, there are attached to these instructions to bidders, the following Bidding Documents:

   Advertisement for Bids (one copy for information)
   Bid Form (in triplicate - two to be submitted)
   Form of Bidder's Bond (in duplicate - for use in lieu of Certified or Cashier's Check at the Bidder's option; one executed copy to be submitted, accompanied by Agent's Power of Attorney)
   Contractor's Qualification and Experience Record (in duplicate - one to be submitted)
   Contractor's Financial Statement (in duplicate - one to be submitted)

B. SUBMISSION OF BIDS

1. All bids shall be submitted on the attached bid form accompanied by the Contractor's Qualification and Experience Record and the Contractor's Financial Statement, together with Bid Security as stipulated below. Such Bid Documents shall be enclosed in an envelope which shall be sealed and clearly labeled, with the name of the Project.

2. The Bidder's Firm name shall be placed on the outside of the bid envelope.

3. Each Bidder shall visit the site and fully acquaint himself with existing conditions.

4. The Owner may consider as informal any bid in which there are incompleted blank spaces and alteration or departure from the Bid Form hereto attached.

C. BID SECURITY

1. No bid will be considered unless it is accompanied by a Certified or Cashier's Check or Bidder's Bond executed on the form attached, in either case, the amount shall be not less than ten per cent (10%) of the greatest amount bid (considering alternates, if any). The bid security shall insure the execution of the Contract and the furnishing of an acceptable Performance and Payment Bond by the successful bidder within two (2) days after notification of award to such bidder and that his bid will not be withdrawn within thirty (30) days after date of opening of bids without the consent of the Owner.

EXHIBIT II-C

INSTRUCTIONS TO BIDDERS - PAGE 2

2. The Performance and Payment Bond shall be in the amount of One Hundred Per Cent (100%) of the total contract sum, in form prescribed by the Owner. A contract with the Owner, in form prescribed by the Owner, shall be executed and delivered together with the said Performance and Payment Bond by the successful bidder within two (2) days after receipt by such successful bidder of Notice of Acceptance of his bid by the Owner.

D. CONTRACTOR'S QUALIFICATIONS AND EXPERIENCE RECORD: CONTRACTOR'S FINANCIAL STATEMENT

1. Each bid shall be accompanied by a "Contractor's Qualification and Experience Record" and a "Contractor's Financial Statement", both of which shall be filled out on the forms attached hereto. The Owner shall have the right to take such steps as seem necessary to determine the ability of the bidder to perform the work and the bidder shall furnish to the Owner all such information and data for this purpose as may be reasonably required. In addition to the general reservation of the right to reject any and all bids, the Owner specifically reserves the right to reject the bid of any bidder who has previously failed to perform properly or complete in a reasonable time a Contract of similar nature, or who has not paid his just bills or otherwise disregarded his obligations to subcontractors, materialmen or employees. In determining the lowest responsible bidder, the following considerations will be taken into account; whether the bidder (a) maintains a permanent place of business; (b) has adequate plant equipment to do the work properly and expeditiously; (c) has a suitable financial status to meet the obligations incident to the work; and (d) has appropriate technical experience.

E. INTERPRETATIONS

Contractors, Subcontractors, and Materialmen bidding on this work are requested to direct their requests for clarification or amplification of the Drawings, and Specifications, covering all phases of the work, including the mechanical and structural work, to the office of the Architect.

Oral interpretations will not constitute authority to change workmanship or materials to be used on this work.

F. ADDENDA

From time to time during the course of bidding, addendum letters will be mailed to each bidder covering amplifications of changes that are of sufficient importance, in the opinion of the Architect, to merit being incorporated as part of the Contract Documents.

All such addenda shall become part of the Contract, and all bidders shall be bound by such addenda, whether or not received by the Bidder. It shall be the responsibility of the Bidder to ascertain, prior to submitting his bid, the number and nature of addenda issued.

EXHIBIT II-C

BID FORM
(SAMPLE)

Submitted by____

____

To the Board of Education
Houston Independent School District
Care of: H. S. Brannen, Business Manager
1300 Capitol Avenue
Houston, Texas

Gentlemen:

The undersigned proposes to perform all work and do all things necessary, including the furnishing of all labor, materials, tools, machinery, equipment, services and transportation required for the construction, accomplishment and completion, in a workmanlike manner, in accordance with the proposed Contract Documents, consisting of the General Conditions, Special Conditions, Specifications, Drawings, and Addenda thereto, prepared by__________(Firm Name)__________Project Architects, for the Houston Independent School District improvements identified as:

1. Name of Project____

   for the sum of____

   Dollars ($__________________), which shall be identified as the Base Bid, to be completed within__________calendar days after execution of the Contract.

EXTRA WORK:

The undersigned proposes to perform extra work on these projects for the direct cost time, as defined in the Specifications plus a mark-up of________% to cover overhead and profit.

UNIT PRICES:

The undersigned proposes to add or omit fill dirt (in place) to or from his contract for the unit price of $__________________per cubic yard.

The undersigned proposes to add or omit drilled footings (because of variation in depth only) to or from his contract for the unit price of $____________per cubic ft.
(Here insert any additional unit prices necessary on the specific project.)

ALTERNATES:

(Where applicable)

EXHIBIT II-D

BID FORM - Page 2

The undersigned hereby acknowledges receipt of the following Addenda.

Nos.:____________________________ Signed____________________________

It is understood that the right is reserved by the Owner to reject any and all bids.

____
(Authorized Signature)

(Seal, if a Corporation)

____
Title

State whether Corporation,
Partnership, or Individual.

BIDDER:____________________________

____

____
(Name of Contracting Firm)

ADDRESS ____________________________

TELEPHONE ____________________________

EXHIBIT II-D

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we ________________________________

____ as Principal,

and ____ as Surety,
are held and firmly bound unto the Board of Education, Houston Independent School District, Houston, Harris County, Texas, hereinafter called the Owner, in the penal sum of

____ Dollars

($________________), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Bid, dated ________________, 19_____, being for the construction of ______________________________, with appurtenances thereto, at Houston, Harris County, Texas, the kind and extent of work involved being set forth in detail in the proposed Contract Documents cited herein.

NOW THEREFORE, if the Principal shall not withdraw the accompanying bid within thirty (30) days after the date set for opening thereof, and shall within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Owner in accordance with the bid as accepted and give Bond and good and sufficient surety for the faithful performance and proper fulfillment of such Contract including the payment of all persons supplying labor or materials therefor, or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such contract and give such bond within the time specified, if the Principal shall pay to the Owner the difference between the aggregate amount specified in said bid and the aggregate amount for which the Owner may enter into a Contract for the same work with another Bidder; if the latter amount be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals this ________________ day of __________, 19_____, the name and Corporate Seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representatives, pursuant to authority of its governing body.

______________________________	______________________________
(Business Address)	(Individual Principal)
______________________________	______________________________
(Business Address)	(Corporate Principal)
ATTEST:	
______________________________	______________________________
Secretary	President
______________________________	______________________________
Business Address	Corporate Surety
ATTEST: ______________________	By: ___________________________

EXHIBIT II-E

CONTRACTOR'S QUALIFICATIONS AND EXPERIENCE RECORD

Name of Bidder____

Business Address____

When Organized____

Where Incorporated____

Years engaged in the Contracting Business under present firm name________

____

Plan of Organization______________________________________

____

Personnel of Organization_________________________________

____

____

Have you ever refused to sign a contract at your original Bid?________

____

Have you ever defaulted on a Contract?____________________

____

Remarks____

____

____

____

____

____

____

____

EXHIBIT II-F

Contractor's Qualification & Experience Record (Continued)

List of Projects Bidder has successfully completed:

Amount of Contract Award	Type of Work	Date Accepted	Name & Address of Owner

List of Projects Bidder is now engaged in completing:

Amount of Contract Award	Type of Work	Date Accepted	Name & Address of Owner

List of Surety Bonds in force on the above uncompleted work:

Amount of Contract Award	Amount of Bond	Name & Address Company

List of major equipment owned by Bidder that is in serviceable condition and available for use:

Portions of work Bidder proposes to sublet in case of award of contract, including amount & type:

Dated at____________________________, this________________day of______________, 19____.

____

Name of Organization

by____

Title____

EXHIBIT II-F

CONTRACTOR'S FINANCIAL STATEMENT

ondition of Bidder at close of Business Month ____________

ASSETS

. Cash on Hand $____________

in Bank(s) ____________

Elsewhere ____________ $____________

2. Accounts Receivable from completed Contracts (exclusive of claims not approved for payment) ____________

. Accounts Receivable from other sources than above ____________

. Amounts earned on uncompleted contracts (not included in Item 3) ____________

. Deposits for Bids or other guarantees ____________

. Notes Receivable: Past Due ____________

Due 90 Days ____________

Due Later ____________ ____________

7. Interest Earned ____________

3. Real Estate Business Property, Present Value ____________

Other Property Present Value ____________ ____________

9. Stocks & Bond - List of Exchange ____________

Unlisted ____________ ____________

0. Equipment, Machinery, Fixtures ____________

Less Depreciation ____________ ____________

TOTAL ASSETS.......$ ____________

EXHIBIT II-G

CONTRACTOR'S FINANCIAL STATEMENT (Continued)

Brought Forward......______________
Assets

LIABILITIES & NET WORTH

1. Notes payable to banks, regular $______________

(for Certified Checks) ______________

Equipment obligations ______________

Other obligations ______________

____

2. Accounts Payable - Current ______________

Past Due ______________

____

3. Real Estate Mortgages ______________

4. Other Liabilities ______________

5. Reserves ______________

6. Capital Stock, Paid Up, Common ______________

Preferred ______________

____

7. Surplus ______________

TOTAL LIABILITIES...$______________

Dated at______________________, this__________day of______________, 19____

____
NAME OF ORGANIZATION

by:______________________________

Title______________________________

EXHIBIT II-G

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

ATE OF TEXAS
UNTY OF HARRIS

THAT WE,____,
Corporation of the State of Texas, with home office and principal place of business
Houston, Harris County, Texas, hereinafter called "Principal" and______________
____,
Corporation of the State of____________________, hereinafter called "Surety", are
ld and firmly bound unto the Houston Independent School District, a body corporate
eated under and by virtue of a Special Act of Legislature of the State of Texas,
reinafter called "Owner", in the amount of________________________________
____________________________________(\$__________________) Dollars for
yment whereof the said principal and surety bind themselves and their heirs,
ministrators, executors, successors and assigns, jointly and severally, firmly by
ese presents.

The condition of this obligation is such that whereas the Principal has
tered into a certain contract with the Houston Independent School District, the
ner, dated the____________day of__________________________, 19________,
r the general construction (including site work, plumbing, heating, ventilating and
ectrical work) of________________________________school building and appurtenances
ereto, on property of the Owner, as follows:

ich said Contract and Documents referred to therein is herein now referred to and
de a part hereof as fully and completely as if copied in detail herein.

NOW, THEREFORE, the condition of this obligation is such that if said
incipal shall well and truly and faithfully perform all the undertakings, covenants,
rms, conditions, and agreements of said Contract, including, but not limited to,
e faithful performance of the work required in accordance with the plans and speci-
cations, during the original term thereof and any extension thereof which may be
anted by the Owner with or without notice to the Surety, and if said Principal shall
tisfy all claims and demands incurred under such Contract and shall fully indemnify
d save harmless the Owner from all costs, damages and reasonable expenses which it
y suffer by reason of failure so to do and shall fully reimburse and repay the
ner all outlay and expenses, including attorney's fees, which the Owner may incur
making good any default, and shall reimburse and repay the Owner for all costs, in-
uding attorney's fees, which the Owner may incur in the prosecution or defense of
y suit or proceeding arising out of the breach or default of the Principal, then
is obligation shall be void; otherwise, to remain in full force and effect.

EXHIBIT II-H

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alterations or additions to the terms of the Contract or to the work to be performed thereunder or of the specifications accompanying the same, shall in anywise affect its obligation on this bond, and it does hereby waive notice of such change, extension of time, alterations or additions to the terms of the contract or to the work or to the specifications thereunder.

It is expressly provided that if any legal action shall be filed upon this bond, venue shall lie in Harris County, Texas.

Simultaneously with the execution of this Performance Bond, the parties hereto have executed a Payment Bond, reference to which is made for all purposes. Nothing in this Performance Bond shall in any way invalidate or nullify the obligations of the parties as set forth in said Payment Bond.

IN TESTIMONY WHEREOF, the parties hereto have executed this instrument on this__________________day of__________________________, 19________.

____

by__________________________

President

ATTEST:

____

Secretary

APPROVED:

____

Surety

____

Business Manager, Board of Education

EXHIBIT II-H

PAYMENT BOND
KNOW ALL MEN BY THESE PRESENTS

STATE OF TEXAS

COUNTY OF HARRIS

THAT WE, ____,

a Corporation of the State of Texas, with its home office and place of business in Houston, Harris County, Texas, hereinafter called "Principal", and ______________

____

hereinafter called "Surety", are held and firmly bound unto the Houston Independent School District, a body corporate created under and by virtue of a Special Act of the Legislature of the State of Texas, hereinafter called "Owner", for the use and benefit of all persons, firms and corporations who may furnish material or perform labor upon the buildings or improvements hereinafter referred to, in the penal sum of ____Dollars,

($______________________), (the Contract Price), in lawful money of the United States of America, to be paid in Houston, Harris County, Texas for payment of which sum well and truly to be made we bind ourselves and our successors, jointly and severally, by these presents.

The condition of this obligation is such that whereas Principal has entered into a Contract with the Houston Independent School District, Owner, dated the ________ day of ______________________, 19_______, for the general construction (including site work, plumbing, heating, ventilating and electrical work) of the buildings and appurtenances described on the following property of the Owner located in Harris County, Texas as follows:

which said Contract is here referred to and made a part hereof as fully and completely as if copied in detail herein.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to all persons, firms and corporations furnishing materials for, or performing labor in the prosecution of the work provided for in such Contract, and any extension or modification thereof, then this obligation shall be void; otherwise, to remain in full force and effect.

Provided, however, that this bond is executed pursuant to the provisions of Article 5160 of the revised Civil Statutes of Texas, as amended by Acts of the 56th Legislature, Regular Session, 1959, and liabilities on this bond shall be determined in accordance with the provisions of said Article to the same extent as if it were copied at length herein.

EXHIBIT II-I

Provided, however, that nothing in this Bond shall be construed to limit the rights of the beneficiaries of this Bond which they might have under general, special or the common law of the State of Texas not inconsistent with the terms hereof and not inconsistent with the provisions of Article 5160, as amended.

Said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alterations or additions to the terms of the Contract or to the work to be performed thereunder, or specifications accompanying the same, shall in anywise affect its obligation on this bond and it does hereby waive notice of such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications thereunder.

No final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied, and it is expressly provided that if any legal action shall be filed upon this bond, venue shall lie in Harris County, Texas.

Simultaneously with the execution of this Payment Bond, the Parties hereto have executed a Performance Bond, reference to which is made for all purposes. Nothing in this Payment Bond shall in any way invalidate or nullify the obligations of the parties as set forth in the Performance Bond.

IN TESTIMONY WHEREOF, the parties hereto have executed this instrument on this ______________Day of____________________________19________.

____

By ______________________________
President

ATTEST:

____
Secretary

____

____
Surety

APPROVED:

____
Business Manager, Board of Education

____
Attorney, Board of Education

EXHIBIT II-I

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

The following definitions pertain to all Contract Documents unless stated otherwise in the Special Conditions.

a. The Contract Documents consist of the Agreement, the General Conditions of the Contract, the Special Conditions, the Drawings and Specifications, including all modifications thereof incorporated in the Documents before their execution and all authorized change orders as hereinafter described. These form the Contract.

b. The Owner, the Contractor and the Architect are those mentioned as such in the Agreement. They are treated throughout the Contract Documents as if each were of the singular number and masculine gender.

c. The Subcontractor, as employed herein, includes only those having a direct Contract with the Contractor and it includes one who furnishes material worked to a special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked.

d. Written notices shall be deemed to have been duly served when delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

e. 'Or Approved Equal". These terms specifically mean and intend that the product or brand of material named shall be used unless a substitution is requested by the Contractor to the Architect and permission for such substitution is granted by the Architect in writing.

f. "Direct", or "Required", or "Approved", or "Acceptable." When they refer to the work or its performance, "directed, required, performed, ordered, designated, prescribed", and words of like import, shall imply the direction, requirement, permission, order, designation or prescription of the Architect and "approved, acceptable, satisfactory, in good judgment," and words of like import, shall mean approved by acceptable to or satisfactory to or in the judgment 'of the Architect.

h. Contractor: When the word "Contractor" is used in these Specifications, it shall mean the Contractor performing any part of the work and does not necessarily limit its meaning to the General Contractor.

i. All time limits stated in the Contract Documents are of the essence of the Contract.

j. The law of the place of building shall govern the execution of this Contract.

N.I.C. BY OTHERS BY OWNER EXISTING	Not in Contract. Indicating work not required to be done by this Contractor under this Agreement.
SHOP DRAWINGS	Includes brochures, schedules, data sheets, fabrication, erection and setting drawings, etc., needed to adequately describe the materials and equipment used in the work.

AIA	AMERICAN INSTITUTE OF ARCHITECTS
ACI	AMERICAN CONCRETE INSTITUTE
AIEE	AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASA	AMERICAN STANDARDS ASSOCIATION
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWSC	AMERICAN WELDING SOCIETY CODE
FS	FEDERAL SPECIFICATION
NBFU	NATIONAL BOARD OF FIRE UNDERWRITERS
NBS	NATIONAL BUREAU OF STANDARDS
NEC	NATIONAL ELECTRIC CODE
SPR	SIMPLIFIED PRACTICE RECOMMENDATION
UL	UNDERWRITERS LABORATORIES, INC.
AISI	AMERICAN IRON AND STEEL INSTITUTE

ARTICLE 2 - EXECUTION, CORRELATION AND INTENT OF DOCUMENTS

The Drawings, General Conditions and Specifications shall be identified by the Architect and Contractor.

The Contract Documents shall be signed in duplicate by the Owner and the Contractor.

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical trade meaning shall be held to refer to such recognized standards.

It is not intended that work not covered under any heading, section, branch, class or trade of the Specifications shall be supplied unless it is shown on drawings or is reasonably inferable therefrom as being necessary to produce the intended results.

ARTICLE 3 - SHOP DRAWINGS

The Contractor shall check and verify all field measurements and shall submit with such promptness as to cause no delay in his own work or in that of any other Contractor, four copies, checked and approved by him, of all shop or setting drawings and schedules required for the work of the various trades. The Architect shall check and approve, with reasonable promptness, such schedules and drawings only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor shall make any corrections required by the Architect, file with him three corrected copies and furnish such other copies as may be needed. The Architect's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing called the Architect's attention to such deviations at the time of submission and secured his written approval, nor shall it relieve him from responsibility for errors in shop drawings or schedules.

ARTICLE 4 - SPECIFICATIONS AND DRAWINGS

For convenience of reference and to facilitate the awarding of Contractors and Subcontractors, the Specifications are separated into titled divisions. Such separations shall not however, operate to make the Architect an arbiter to establish limits to the Contracts between the Contractor and the Subcontractor. It is not the intention of the individual Divisions of the Specifications to mention or otherwise enumerate each and every item of work or appurtenances therefor that are required for the particular Division. Certain items of work that involve special requirements are frequently mentioned.

In keeping with paragraph above, it is the intent of the Specifications that the proper execution of all work shall be the responsibility of the General Contractor, and even though he may elect to sublet certain parts of the work, the Owner and Architect will hold him responsible for the proper execution thereof. If the General Contractor elects to enter into a Subcontract for any Division of the work, he shall assume all responsibility of ascertaining that the Subcontractor for the work is thoroughly acquainted with all conditions of the work and that the Subcontractor has included all materials and appurtenances in connection therewith. It shall be the responsibility of the General Contractor to notify his Sub-bidders, at time of request, for bids, of all paragraphs of the General Conditions, Special Conditions and any parts of other Divisions of the Specifications that he, the General Contractor, intends to include as a part of the Subcontract.

The Plans and Specifications are complementary and anything mentioned in the Specifications and not shown on the Plans or shown on the Plans and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both. In the event of conflict between the Drawings and Specifications, it shall be brought to the attention of the Architect immediately for clarification. Large scale Drawings shall take precedence over smaller scale drawings.

Omissions from the Plans and Specifications or the misdescription of details of work which are evidently necessary to carry out the intent of the Plans and Specifications of which are customarily performed, shall not relieve the Contractor from performing such omissions and details of work, but they shall be performed as if fully and correctly set forth and described in the Plans and Specifications.

The Contractor shall check the site dimensions, all Plans and Specifications furnished him, immediately upon their receipt and shall promptly notify the Architect of any discrepancies therein. Figures marked on Plans shall be followed in preference to scale measurements. The Contractor shall compare all Drawings and verify all figures before laying out the work and he will be held responsible for any subsequent errors that might have been avoided by such check. When measurements are affected by conditions already established, the Contractor shall take necessary measurements notwithstanding the giving of scale or figure dimensions in the Drawings.

Deviations from the Plans and dimensions shown, whether or not error is believed to exist, shall be made only after instructions are obtained from the Architect in writing,

Wherever there are discrepancies between the Drawings, or the Drawings and Specifications, the Contractor shall estimate upon the better quality or greater quantity of material or work called for and it shall be so furnished unless otherwise ordered in writing by the Architect.

The Contractor shall keep one (1) copy of the Plans and Specifications at the site of the work, signed and identified by the Architect and shall give the Architect and his representatives access thereto. During the course of the work or should any errors, omissions, ambiguities or discrepancies be found on the Plans or in the

Specifications, or should there be found any discrepancies between the Plans and Specifications to which the Contractor has failed to call attention before submitting his bid, then the Architect will interpret the intent of the Plans and Specifications, and the Contractor will abide by the Architect's interpretation and shall carry out the work in accordance with the decision of the Architect. The Architect may interpret or construe the Plans and Specifications so as to secure, in all cases, the most substantial and complete performance of the work as is consistent with the needs and requirements of the work and of that question the Architect shall be the sole judge.

The Contractor assumes sole responsibility for satisfactory results if he fails to notify the Architect of any condition where, in Contractor's judgment, it would be desirable to modify the requirements to produce the desired results. If the Contractor's modifications are accepted, it is with the understanding that the Contractor assumes sole responsibility for satisfactory results of such modifications.

ARTICLE 5 - OWNERSHIP OF DRAWINGS

All Drawings, Specifications and copies thereof furnished by the Architect are his property. They are not to be used on other work and with the exception of the signed Contract set, are to be returned to him on request, at the completion of the work.

ARTICLE 6 - EXAMINATION OF SITE

Before submitting proposals for this work each bidder will be held to have examined the premises and satisfied himself as to the existing conditions under which he will have to operate in performing his part of the work under this Contract. No allowance shall be made subsequently in this connection in behalf of the Contractor for any error or negligence on his part.

ARTICLE 7 - SAMPLES

The Contractor shall furnish for approval, with reasonable promptness, all samples as directed by the Architect. The Architect shall check and approve such samples with reasonable promptness for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents only. The work shall be in accordance with approved samples. Dimensions and correlation with other parts of the work are the responsibility of the Contractor.

ARTICLE 8 - MATERIALS, APPLIANCES, EMPLOYEES, WORKMANSHIP

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the work in good and workmanlike manner. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

Where a definite material, method or piece of equipment is specified, it is not the intention to discriminate against any comparable product of another manufacturer. It is, rather, the intention to set a definite standard. Open competition is expected, but no substitution shall be made unless authorized in writing by the Architect. No substitution will be considered or approved unless, in the opinion of the Architect, it is in the best interest of the Owner. The procedure to be followed in the proposal of substitution shall be as indicated in the Special Conditions. Acceptance of a substitution shall in no way infer a waiver of guarantees or other Contractor responsibilities. All materials shall be new and of high quality suited to the use intended except as otherwise noted. When a material is not specified completely, it shall be of the type and quality to match corresponding or related materials. Installed materials and equipment must be of good appearance where exposed to view. They must properly serve the function for which they are intended. No materials shall be used which are subject to any chattel mortgage, or under a conditional sale, or other agreement by which an interest is retained by the seller. The Contractor warrants that he has a clear title to all materials used by him in the work.

Workmanship must be of uniformly high quality. Materials must be evenly fitted and joined, plumb and true to line. Adjoining materials shall meet with neat straight lines free of smears or overlap. Exposed materials shall be appropriately installed, finished and fabricated. Attachment of materials shall be of sufficient strength, number and spacing to hold intact unless materials joined are broken or permanently deformed.

Utility meters, tapping charges, with the exception of the sanitary sewer tapping charge, fees, deposits, city inspections, etc., to be arranged and paid for by the Contractor except when specifically designated otherwise.

The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

ARTICLE 9 - ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees. He shall defend all suits for infringement of any patent rights and shall save the Owner harm less from loss on account thereof.

ARTICLE 10 - PERMITS AND REGULATIONS

The Contractor shall obtain and pay for all permits and certificates of inspection necessary for the prosecution and completion of the work, ready for use and occupancy. He shall comply with all laws and regulations bearing on the conduct of the work and shall notify the Owner if the Drawings and Specifications are at variance therewith.

ARTICLE 11 - PROTECTION OF WORK AND PROPERTY

The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the Owner's property from injury or loss arising in connection with this Contract. He shall make good any such damage, injury or loss, except such as may be directly caused by agents or employees of the Owner, or due to causes beyond the Contractor's control and not due to his fault or negligence. He shall adequately protect adjacent property as provided by law and the Contract Documents.

The Contractor shall take all necessary precautions for the safety of employees on the work, and shall comply with all applicable provisions of Federal, State and Municipal safety laws and building codes to prevent accidents or injury to persons

EXHIBIT II-J

on, about or adjacent to the premises where the work is being performed. He shall erect and properly maintain at all times, as required by the conditions and progress of the work, all necessary safeguards for the protection of workmen and the public and shall post danger signs warning against the hazards created by such features of construction as protruding nails, hoists, well holes, elevator hatchways, scaffolding, window openings, stairway and falling materials; and he shall designate a responsible member of his organization on the work, whose duty shall be the prevention of accidents. The name and position of any person so designated shall be reported to the Architect by the Contractor.

In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor, without special instruction or authorization from the Architect or Owner, is hereby permitted to act, at his discretion to prevent such threatened loss or injury, and he shall so act, without appeal, if so authorized or instructed. Any compensation, claimed by the Contractor on account of emergency work, shall be determined by agreement or arbitration.

ARTICLE 12 - ACCESS TO WORK

The Architect and his representatives shall at all times have access to work whereever it is in preparation or progress and the Contractor shall provide proper facilities for such access and so that the Architect may perform his functions under the Contract Documents.

If the Specifications, the Architects instructions, laws, ordinances or any public authority require any work to be specially tested or approved, the Contractor shall give the Architect timely notice of its readiness for such inspection or approval. If the inspection is to be made by another authority, the Architect shall be informed of the date fixed for such inspection. The Contractor shall secure required certificates of inspection. Observations by the Architect shall be promptly made. If any work should be covered up without approval of consent of the Architect, it must, if required by the Architect, be uncovered for examination at the Contractor's expense.

Re-examination of questioned work may be ordered by the Architect, and if so ordered, the work must be uncovered by the Contractor. If such work be found in accordance with the Contract Documents, the Owner shall pay the cost of re-examination and replacement. If such work be found not in accordance with the Contract Documents, the Contractor shall pay such cost, unless it be found that the defect in the work was caused by a Contractor employed as provided in Article 28 and in that event the Owner shall pay such cost.

Laboratory tests and control services shall be selected by the Owner and Architect and paid for directly by the Owner if not specified otherwise. The Contractor shall cooperate with the testing laboratory by proper notification of operations, supplying labor and materials to patch sampled areas. This shall not relieve the Contractor from his obligations under this Contract. Correct work to conform to Contract Documents when tests, samples or inspection indicate non-complying work. When non-complying work is found, the entire area of work involved shall be corrected unless the Contractor can completely define the limits of the non-complying work to the Architect's satisfaction. Additional testing, sampling or inspecting needed

EXHIBIT II-J

to define non-complying work shall be at the Contractor's expense. He may employ the Owner's or any other competent independent testing laboratory as approved by the Architect. All corrected work shall be re-tested at the Contractor's expense.

Inspection Certificate in original copies provided by governmental authorities shall be delivered to the Architect upon completion of the work.

ARTICLE 13 - SUPERINTENDENCE; SUPERVISION

The Contractor shall keep on his work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Architect. The superintendent shall not be changed except with the consent of the Architect, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ. The superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor. Important directions shall be confirmed in writing to the Contractor. Other directions shall be so confirmed on written request in each case. The Architect shall not be responsible for the acts or omissions of the superintendent or his assistants. The Contractor shall give efficient supervision to the work using his best skill and attention. He shall carefully study and compare all Drawings, Specifications and other instructions and shall at once report to the Architect any error, inconsistency, discrepancy or omission of which he may have knowledge, but he shall not be liable to the Owner for any damage resulting from any errors or deficiencies in the Contract Documents or other instructions by the Architect.

ARTICLE 14 - CHANGES IN THE WORK

The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

In giving instructions, the Architect shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the building, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a signed, written order from the Owner, countersigned by the Architect, and no claim for an addition to the Contract Sum shall be valid unless so ordered.

The value of any such extra work or change shall be determined in one or more of the following ways:

a. By estimate and acceptance in a lump sum.

b. By unit prices named in the Contract or subsequently agreed upon

No changes in the work made by the Owner shall in any way be taken to relieve the Contractor of his obligations and responsibilities under the Contract. By the provisions of this Article, any person, firm or Corporation executing a Performance or Payment bond upon the Contractor's work under this Contract shall be deemed to

have consented in advance to any changes in the work made by order of the Owner in accordance with this Article and such changes made under these provisions shall, in no way, alter or impair the obligations of such person, firm or corporation executing such a bond.

Changes involving only omissions or reductions in the Contract shall return credits to the Owner equal to the Direct Cost savings only with Overhead and Profit retained by the Contractor to compensate for expenses of preparing proposals that are not accepted.

When work is both added and deducted in the same change, only the net change in direct costs shall be used in figuring the price adjustment.

Relocations of items not involving changes in direct costs are not to be considered as Changes in the Work.

Contractor shall evidence his costs by original invoices for all materials and payroll vouchers for labor when the Architect directs changes in the work to proceed in advance of reaching a price agreement with the Contractor.

The following definitions for cost plus fixed fee changes in the work apply only when the change is made under the terms of cost plus fixed fee.

Direct Costs - to include the following expenses necessary for the Change in the Work:

a) The wages of all workment including Social Security, Old Age Benefits, Workmen's Compensation and other payroll taxes. (Wages of foremen may be included to the extent they perform actual labor on the Change other than supervision. Supervision is considered an Overhead Item.)

b) Cost of materials (after taking all trade, volume, cash and other discounts available to the Contractor).

c) Travel Expenses (only when Contractor is paying on original job).

d) Cost of utilities such as electricity, water, etc., when metered separately to determine amount applicable to the Change.

e) Cost of equipment and machinery figured by rental or proration determination. Small tools excluded. Unless equipment prices are agreed upon, the prices shall be based on current schedule of equipment Ownership Expense adopted by the local Chapter of Associated General Contractors of America. When Contractor rents for less than this schedule, the actual rate shall be used.

f) Bond and Insurance Premium adjustments prorated to the Change.

g) Permit and fee adjustments required by the Change.
Overhead to include the following expenses necessary to perform the Change in the work:

1. Supervisor's and foreman's wages
2. Timekeeper's, clerks and watchmen's wages
3. Small tool expense
4. Minor use of utilities
5. Field and General office expenses
6. Incidental job burdens and all other expenses not specifically noted under direct costs.

EXHIBIT II-J

Mark up - The Contractor (or Sub-contractor) actually performing the work of the Change shall be entitled to a 15% maximum mark-up of his Direct Costs to compensate him for all overhead, including insurance and taxes and profit.

When a Subcontractor performs the Change, the General Contractor shall be entitled to a mark up of the cost to him per the following table:

$ 0	$ 50	Cost	=	$10.00	Mark-up
50	150	"	=	20%	
150	350	"	=	30.00	
300	500	"	=	10%	
500	1000	"	=	50.00	
Over	1000	"	=	5%	

When a Subcontractor performs the work of a Change, the maximum 15% mark-up figure shall be used only by him. The Sub contractor's and General Contractor's mark-ups would each be according to the table above.

ARTICLE 15 - CLAIMS FOR EXTRA COST

If the Contractor claims that any instructions by Drawings or otherwise involve extra cost under this Contract, he shall give the Architect written notice thereof within ten days after the receipt of such instructions and in any event before proceeding to execute the work, except in emergency endangering life of property, and the procedure shall then be as provided for changes in the work. No claim shall be valid unless so made.

ARTICLE 16 - DEDUCTIONS FOR UNCORRECTED WORK

If the Architect and Owner deem it inexpedient to correct work injured or done not in accordance with the Contract, an equitable deduction from the Contract price shall be made therefor.

ARTICLE 17 - TIME LIMIT, LIQUIDATED DAMAGES, EXTENSION OF TIME

The Contractor's proposal shall state the number of calendar days in which he proposes to complete the work to be performed under this Contract. Upon execution of the Contract by the Owner, it shall become an obligation of the Contractor to complete all work included in the Contract within the number of calendar days he has proposed; the reckoning of such time shall start from the date of execution of the Contract by the Owner. Calendar days shall be deemed to include Saturdays and Sundays, legal holidays as well as working days.

The parties hereto agree that time is of the essence of this Contract and that the pecuniary damages which would be suffered by the Owner, if the Contractor shall not complete all work included in this contract within the number of calendar days in which he proposes and agrees to complete such work, are in their nature difficult of ascertainment and it is therefore expressly agreed, as part of the consideration inducing the Owner to execute this Contract, that the Contractor shall pay to the Owner or allow the Owner to deduct from the final payment otherwise payable by the Owner to the Contractor a sum equal to that stated in the Special Conditions per calendar day for each and every calendar day beyond the agreed number, as extended by approved extensions of time, which the Contractor shall require for the completion of all work included in this Contract, it being expressly understood that the above named sum per day is now agreed upon as a fair estimate of the pecuniary damages which will be suffered or sustained by the Owner in the event the said work is not completed within the agreed time; it is understood that the said sum shall be considered as liquidated damages and shall in no sense be considered as a penalty against the Contractor.

If the Contractor be delayed at any time in the progress of the work by any act or neglect of the Owner or the Architect, or of any employees of either, or by any separate Contractor employed by the Owner or by changes ordered in the work, or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties, inclement weather or any causes beyond the Contractor's control which the Architect shall decide to constitute justifiable delay, then he shall make written request for extension of time and the time of completion shall be extended for such reasonable time as the Architect may decide, subject to the following provisions:

No such extension of time shall be made for delay occurring more than 10 days before claim therefor is made in writing by the Contractor to the Architect. In the case of a continuing cause of delay, only one claim is necessary. Claims for extension time shall be stated in numbers of whole or half days. In the case of claims for extension of time because of inclement weather, such extension of time shall be granted only because of inclement weather occurring on a normal working day and preventing the execution of the major item of work underway at that time.

Extension of time and the revised completion date shall be kept current throughout the progress of the work. If the Contractor does not complete the work within the completion time as extended by reason of approved extensions of time, liquidated damages at the above named rate shall then begin to accrue to the Owner.

ARTICLE 18 - CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor shall promptly remove from the premises, all work condemned by the Architect as failing to conform to the Contract, whether incorporated or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good, all work of other contractors destroyed or damaged by such removal or replacement.

If the Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Owner may remove it and may store material at the expense of the Contractor. If the Contractor does not pay the expenses of such removal within ten days time thereafter, the Owner may, upon ten days' written notice, sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.

If proceeds of sale do not cover expenses, the Contractor should have borne, the difference shall be paid to the Owner by the Contractor.

ARTICLE 19 - CORRECTION OF WORK AFTER FINAL PAYMENT

The Contractor shall remedy any defects due to faulty materials or workmanship and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final payment, or from the date of the Owner's substantial usage or occupancy of the Project, whichever is earlier, and in accordance with the terms of any special guarantees provided in the Contract. The Owner shall give notice of observed defects with reasonable promptness. All questions arising under this Article shall be decided by the Architect subject to arbitration, notwithstanding final payment.

The Owner's claims against the Contractor to remedy defects and pay for property damages resulting from defects will be limited to the Contract work itself and will not extend to building contents or other work performed by the Owner, provided the Contractor executed the Contract work in a good and workmanlike manner in accord with the Contract. The Contractor shall be fully liable for damages as a result of defects that cause injury or death and all types of claims for damages by third parties.

The Contractor shall correct his defects promptly or the Owner may have corrections made and charged to the Contractor.

The Owner may make emergency repairs to the Contract work to prevent further damages. The Contractor shall pay for such repairs when necessitated by defects in the contractor's work.

If there are indications that defects in the Contract work might exist with a potential to cause damages or injuries, the Contractor shall promptly inspect and test all his work for such defects as directed by the Architect. If the Contractor fails to do this promptly, the Owner may do it and charge it to the Contractor.

When the starting point of the guarantee is calculated from the date of the Owner's substantial usage, but if such usage is not complete, those portions not used shall have their guarantee period appropriately extended.

ARTICLE 20 - THE OWNER'S RIGHT TO DO WORK

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, The Owner, after three days' written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor, provided, however, that the Architect shall approve both such action and the amount charged to the Contractor.

ARTICLE 21 - OWNER'S RIGHT TO TERMINATE THE CONTRACT

Should the Contractor neglect to prosecute the work diligently or properly, or fail to perform any provisions of the Contract, the Owner, after seven days' written notice to the Contractor, may, without prejudice to any other remedy he may have, make good the deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor or, at the Owner's option, he may terminate the Contract and take possession of all materials, tools, and appliances and finish the work by such means as he sees fit and if the unpaid balance of the finish work by such means as he sees fit, and if the unpaid balance of the Contract price exceeds the expense of finishing the work, such excess shall be paid to the Contractor-but if such expense exceeds such unpaid balance, the Contractor shall pay the difference to the Owner.

ARTICLE 22 - CONTRACTOR'S RIGHT TO TERMINATE CONTRACT

Should the work be stopped by any public authority for a period of ninety days or more, through no fault of the Contractor or should the Owner fail to pay the Contractor any payment within thirty days after it is due, then the Contractor, upon seven days' written notice to the Owner, may stop work or terminate the Contract and recover from the Owner payment for all work executed and any loss sustained and reasonable profit and damages.

ARTICLE 23 - CONTRACTOR'S LIABILITY INSURANCE

The Contractor shall maintain such insurance as will protect him from claims under Workman's Compensation Acts and from any other claims for damages for personal injury, including death, which may arise from operations under this Contract. Certificate of such insurance shall be filed with the Owner and shall be subject to his approval for adequacy of protection.

ARTICLE 24 - BUILDER'S RISK INSURANCE

The General Contractor shall maintain and pay the premium cost of Builder's Risk insurance covering fire, windstorm and explosion (or fire and extended coverage) incorporating with the policy or policies, Texas Form No. 21 (Actual completed value form). Form No. 79-C (Vandalism and Malicious Mischief Endorsement) (this must include the name of the insured Contractor and Board of Education, Houston Independent School District), Form No. 77 (General Change Endorsement including this paragraph: "Permission is given for the building insured hereunder to become occupied, the insurance remaining in full force and effect until such time as final settlement has been made by the Owner and Contractor), all as currently approved by the Texas Board of Insurance Commissioners. Such insurance shall be evidenced by the kind of policy or policies which do not have to be adjusted or reported upon periodically but provide constant insurance at full 100% of all insurable values as they are created during construction by performance of the general Contract.

If separate bids are called for and the Contracts for plumbing, heating, ventilating and electric work are awarded separate from the General Construction Contract, the General Contractor alone shall maintain and pay the premium cost of such Builder's Risk Insurance and the separate Contractors for plumbing, heating, ventilating and electric work, in that event, will not be required to maintain separate Builder's Risk Insurance, but will be insured jointly with the Owner and the General Contractor as provided herein.

Loss under such Builder's Risk Insurance shall be made payable jointly to the Board of Education, Houston Independent School District and to the General Contractor by name (and, if separate Mechanical Contracts are awarded to each, by name, of the Plumbing, Heating, Ventilating and Electric Contractors).

In case of loss under the risks covered, and of collection by insured, the Owner shall act as Trustee for all parties concerned as their interests may appear.

The original Builder's Risk Insurance Policy shall be delivered to and left in the safekeeping of the Business Manager of the Owner, a Certificate or copy being retained by the General Contractor (and Certificates or copies being furnished the separate Subcontractors, if any).

ARTICLE 25 - GUARANTY BOND

The Contractor shall furnish a Performance Bond and Payment Bond covering the faithful performance of the Contract and payment of all obligations arising thereunder, in such forms as the Owner may prescribe and with such corporate surety as the Owner may approve. However, all such bonds shall incorporate by reference, if not otherwise, the provisions of this entire Contract and such surety shall be bound by all such provisions.

ARTICLE 26 - LIENS

Pursuant to Public School Laws of Texas (Acts 1905, 29th Leg., R. S., Ch. 124, Secs., 84-85, P. 284) no Mechanic, Contractor, Materialman or other person can contract for, or in any other manner have or acquire, any lien upon the building, buildings, or land on which this Contract is performed.

ARTICLE 27 - ASSIGNMENT

Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to his hereunder, without the previous written consent of the Owner.

ARTICLE 28 - SEPARATE CONTRACTS

The Owner has the right to let other Contracts in connection with the work and the Contractor shall properly cooperate with any such other Contractors.

ARTICLE 29 - SUBCONTRACTS

The Contractor shall, within 24 hours after the submission of his bid and before closing with any subcontractors, notify the Architect in writing of the names of Subcontractors proposed for the work and shall not employ any that the Architect may then object to as incompetent. By "Contractor", above, is meant the apparent low bidder and/or other Subcontractors submitting bids on the project at the time who may be specifically requested by the Owner to list Subcontractors. The Contractor may at any time, subject to the approval of Owner, change the Subcontractors so named.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the Owner.

ARTICLE 30 - RELATIONS OF CONTRACTOR AND SUBCONTRACTOR

The Contractor agrees to bind every Subcontractor and every Subcontractor agrees to be bound by the terms of the Agreement, the General Conditions of the Contract, the Special Conditions, the Drawings and Specifications, the Addenda and Change Orders, as far as applicable to his work, including the following provisions of this Article, unless specifically noted to the contrary in a Subcontract approved in writing as adequate by the Owner or Architect.

The Subcontractor agrees---------------

a) To be bound to the Contractor by the terms of the Agreement, General Conditions, the Addenda and Change Orders of the Contract, the Special Conditions, the Drawings & Specifications, and to assume toward him all the obligations and responsibilities that he, by those documents, assumes toward the Owner.

b) To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment under Article 35 of the General Conditions.

c) To make all claims for extras for extensions of time and for damages for delays or otherwise, to the Contractor in the manner provided in the General Conditions of the Contract and the Special Conditions for like claims by the Contractor upon the Owner, except that the time for making claims for extra cost is one week.

The Contractor agrees ------------------------

d) To be bound to the Subcontractor by all obligations that the Owner assumes to the Contractor, under the Agreement, General Conditions of the Contract, the Special Conditions, the Drawings and Specifications, the Addenda and Change Orders and by all the provisions thereof affording remedies and redress to the Contractor from the Owner.

e) To pay the Subcontractor, upon the payment of Certificates, if issued under the schedule of values described in Article 35 of the General Conditions, the amount allowed to the Contractor on account of the Subcontractor's work to the extent of the Subcontractor's interest therein.

f) To pay the Subcontractor, upon the payment of Certificates, if issued otherwise than as in (e), so that at all times his total payments shall be as large in proportion to the value of the work done by him as the total amount certified to the Contractor is to the value of the work done by him.

g) To pay the Subcontractor to such extent as may be provided by the Contract Documents or the Subcontract, if either of these provides for earlier or larger payments than the above.

h) To pay the Subcontractor on demand for his work or materials as far as executed and fixed in place, less the retained percentage, at the time the Certificate for Payment should issue, even though the Architect fails to issue it for any cause not the fault of the Subcontractor.

i) To pay the Subcontractor a just share of any insurance money received by him, the Contractor, under Article 24 of the General Conditions.

j) To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specifically named in the Subcontract.

k) That no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first ten days of the Calendar Month.

l) To give the Subcontractor an opportunity to be present and to submit evidence in any arbitration involving his rights.

m) To name as arbitrator under arbitration proceedings as provided in the General Conditions the person nominated by the Subcontractor, if the sole cause of dispute is the work, materials, rights or responsibilities of the Subcontractor; or, if of the Subcontractor and any other Subcontractor jointly, to name as such arbitrator the person upon whom they agree.

n) In the matter of arbitration, their rights and obligations and all procedure shall be analogous to those set forth in this Contract; provided, however, that a decision by the Architect shall not be a condition precedent to arbitration.

Nothing in this Article shall create any obligation on the part of the Owner to pay or to see to the payment of any such sums to any Subcontractor.

ARTICLE 31 - ARCHITECT'S STATUS

The Architect shall be the Owner's representative during the construction period and he shall observe the work in process on behalf of the Owner. He shall have authority to act on behalf of the Owner only to the extent expressly provided in the Contract Documents or otherwise in writing, which shall be shown to the Contractor.

The Architect shall be, in the first instance, the interpreter of the Conditions of the Contract and the judge of its performance. He shall side neither with the Owner nor with the Contractor but shall use his powers under the Contract to enforce its faithful performance by both.

In case of the termination of the employment of the Architect, the Owner shall appoint a capable and reputable Architect against whom the Contractor makes no reasonable objection, whose status under the Contract shall be that of the former Architect; any dispute in connection with such appointment shall be subject to arbitration.

The furnishing, by the Owner, of Data, including soil tests, shall not relieve the Contractor of his obligations under Article 6 of the General Conditions.

The Architect is authorized by the Owner to:

a) Inspect all work and materials and observe their conformance with the Contract Documents.

b) Direct a halt in the execution of any portion of the work immediately when he observes work progressing in apparent non-conformance with the Contract Documents. Work so halted shall not be resumed until the Contractor satisfies the Architect that the work will be executed properly.

c) Make minor changes and adjustments not requiring a change in cost and not changing the function of the work.

The Architect is not authorized to:

a) Revoke, alter, enlarge, relax, change or release any requirements of the Contract Documents except in the minor degree noted above.

b) Approve or accept any portion of the work or issue instructions contrary to the Contract Documents.

c) Give instructions to the Contractor that will increase the cost of the work unless the Architect has the Owner's specific written permission to do so. Duties of the Architect shall in no way include activities that are Contractor's duties and responsibilities, such as arranging work, ordering materials, giving Subcon-

contractors notices or directions, giving workers instructions, coordination of work, etc. Any advice the Architect gives the Contractor shall in no way be construed as binding or releasing the Contractor from fulfillment of the requirements of the Contract.

The Architect shall not be authorized to remove, alter, enlarge, relax or release any requirements of the Specifications nor to issue instructions contrary to the Plans and Specifications. The Architect shall in no case act as foreman or perform duties for the Contractor.

ARTICLE 32 - ARCHITECT'S DECISIONS

The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all other matters relating to the execution and progress of all work or the interpretation of the Contract Documents.

The Architect's decision in matters relating to artistic effect, shall be final, if within the terms of the Contract Documents.

Except as above, or, as otherwise expressly provided in the Contract Documents, all the Architect's decisions are subject to arbitration.

If, however, the Architect fails to render a decision within ten days after the parties have presented their evidence, either party may then demand arbitration. If the Architect renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not disturb or interrupt such proceeding except where such decision is acceptable to the parties concerned.

ARTICLE 33 - ARBITRATION

Any disagreement arising out of this Contract or for the breach thereof, shall be submitted to arbitration and this agreement shall be specifically enforceable under the prevailing arbitration law, and judgment upon the award rendered may be entered in the highest court of the forum, State or Federal having jurisdiction. It is mutually agreed that the decision of the arbitrators shall be a condition precedent to any right of legal action that either party may have against the other.

The parties may agree upon one arbitrator; otherwise there shall be three, one named in writing by each party of this Contract within five days after notice of arbitration is served by either party upon the other, and a third arbitrator selected by these two arbitrators within five days thereafter. No one shall serve as an arbitrator who is in any way financially interested in this Contract or in the affairs of either party thereto.

At the written request of either party, at any time prior to the complete appointment of arbitrators, as provided above, or in the event of any default or lapse in the proceeding, the arbitration shall be held under the Standard Form of Arbitration Procedure of the American Institute of Architects or of the Rules of the American Arbitration Association.

ARTICLE 34 - CASH ALLOWANCES

1. The Contractor shall include in the Contract sum all allowances named in the Contract Documents and shall cause the work so covered to be done by such Contractors and for such sums as the Owner may direct, the Contract sum being adjusted in conformity therewith. The Contractor declares that the Contract sum includes such sums for expense and profit on account of cash allowances as he deems proper. No demand for expenses or profit other than those included in the Contract sum will be allowed. The Contractor shall not be required to employ for any such work, persons against whom he has a reasonable objection.

ARTICLE 35 - TERMS OF PAYMENT

The Owner shall make payments on account of the Contract sum as follows:

(a) On the 15th day of each month, 90% of the value of labor and materials incorporated in the work and of materials for the work delivered and suitably stored and protected at the site through the last day of the previous month, less the aggregate of previous payments and, 31 days after all work included in the Contract shall have been fully performed, the remaining balance of the Contract sum as adjusted by reason of additions and deductions as provided in the Contract Documents shall be due and payable by the Owner to the Contractor, subject to the following conditions:

(b) The Contractor shall submit to the Architect an application for each progress payment by the 5th day of the month. These applications for payments shall be in the form of statements listing the values of labor and materials incorporated in the work and of materials for the work delivered and suitably stored and protected at the site through the last day of the previous month; these applications for progress payments to show 90% of the total of the above values, less the aggregate of all previous payments on account, as the amount payable on account of the Contract sum at the next 15th day of the month. These applications for progress payments shall be accompanied by such invoice and payroll statements substantiating the amounts listed as values for the various divisions of work in the Contractor's application for payments as the Architect may require.

(c) Before the first application for a progress payment as above, the Contractor shall submit to the Architect, for approval, a schedule of values of the various parts of the work, including quantities, aggregating the total sum of the Contract, divided so as to facilitate checking applications for payments. In making application for payment, the Contractor shall use a form approved by the Owner, showing the above schedule of values on which the current application for payment is based and the remaining uncertified balances under each subdivision or part of the work.

(d) If the Contractor shall have submitted the above-mentioned schedule of values and has made application for a progress payment as above, the Architect shall, not later than the 10th day of the month, issue a Certificate for such amounts as he decides to be properly due under the terms of the Contract. Upon approval and presentation to the Business Manager of the Owner of such Certificates for progress payment, the amount of such Certificate shall be paid by the Owner to the Contractor on the 15th day of the month as provided above.

(e) The balance of the Contract sum as adjusted by reason of duly authorized additions and deductions, if any, shall be payable by the Owner to the Contractor 31 days after all work included in the Contract shall have been fully performed, provided that the Contractor shall submit to the Architect his application for this payment together with supporting evidence as follows; Contractors' notarized affidavit that all indebtednesses incurred by him, hereunder, have been paid, and receipts, statements or other satisfactory evidence from Subcontractors and Materialmen further attesting that all indebtednesses incurred by the Contractor in the performance of this Contract have been paid, (or if any claims of the Contractor's indebtedness have been filed with the Owner or placed on record and then unsettled, the Contractor may furnish with his application for this payment a statutory double indemnity lien bond, satisfactory to the Owner's attorney, covering such unsettled claims.) When the Contractor has submitted the abovementioned application for payment, together with the above mentioned affidavit and evidences of the payment of indebtedness incurred hereunder, and has covered any claims of his indebtedness that may then have been filed and which still remain unsettled by a proper statutory lien bond or bonds, if the Architect finds that this Contract has been fully performed, he shall approve for payment the amount properly due hereunder and payment shall be made after submission to the Business Manager of the Owner of this approved application for final payment, provided that this payment shall not fall due until 31 days after completion of the work hereunder, and provided further that the Owner may withhold sufficient amounts for the protection against all claims of which notice has been filed in lieu of taking the said lien bond and pay the Contractor the balance.

(f) No approval for payment nor payment made to the Contractor nor partial or entire use of the work by the Owner shall be an acceptance of any work or materials not in accordance with this Contract. The making and acceptance of final payment as herein provided, shall not constitute a waiver of claims by the Owner arising from unsettled claims of the Contractor's indebtedness, from faulty work appearing after payment, from requirements of the Contract, or from claims by the Contractor previously made and still unsettled.

(g) The Architect may withhold approval of part of the amount otherwise due on progress payments or final payment to the Contractor to such extent as may be necessary to protect the Owner against loss on account of:

(1) Defective work not remedied.
(2) Claims filed or reasonable evidence indicating probable filing of claims.
(3) Failure of the Contractor to make payments properly to vendors, Subcontractors, or for materials or labor.
(4) A reasonable doubt that the Contract can be completed for the balance then unpaid
(5) Damage to another Contractor
(6) Minor items of work or adjustment not satisfactorily performed at the time when the Contract is otherwise completed.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

ARTICLE 36 - USE OF PREMISES

1. The Contractor shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the Architect and shall not unreasonably encumber the premises with his materials.

2. The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

3. The Contractor shall enforce the Architect's instructions regarding signs, advertisements, fires and smoking.

ARTICLE 37 - CUTTING, PATCHING AND DIGGING

The Contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit to receive or be received by work of other Contractors shown upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and he shall make good after them as the Architect may direct.

Any cost caused by defective or ill-timed work shall be borne by the party responsible therefor.

The Contractor shall not endanger any work by cutting, digging or otherwise and shall not cut and alter the work of any other Contractor, save with the consent of the Architect.

ARTICLE 38 - CLEANING UP

The Contractor shall keep the premises free from accumulation of waste material and rubbish and at the completion of the work he shall remove from the premises all rubbish, implements and surplus materials and leave all parts of the premises where work under this Contract has been performed thoroughly clean and ready for occupancy.

The Contractor shall turn the work over in immaculately clean condition inside and outside (including the premises). Clean up shall include removal of smudges, marks, stains, fingerprints, soil, dirt, paint, dust, lint, labels, discolorations and other foreign materials. Clean all finished surfaces inside and outside of building such as (but not limited to) floors, walls, ceilings, windows, glass, doors, fixtures, hardware and equipment. Clean all work on the premises such as (but not limited to) walks, drives, curbs, paving, fences, grounds, walls, and graded areas. Slick surfaces shall be left with a clear shine. Remove all temporary facilities and job sign.

ARTICLE 39 - PREVAILING WAGE RATES

In compliance with laws of Texas relating to labor (Acts 1933, 43 Leg., P. 91, Chap., 45) the wage rates listed in the Special Conditions of these Specifications have been ascertained and determined by the Owner as the general prevailing rates in the locality of the Houston Independent School District for the classifications listed. The Contractor and each Subcontractor shall pay to all laborers, workmen and mechanics employed by them in the execution of this Contract not less than such rates for each craft or type of workman or mechanic needed to execute the Contract. If it becomes necessary to employ any person in a trade or occupation not herein listed, such person shall be paid not less than an hourly rate fairly comparable to the rates shown hereinafter.

This determination of prevailing wages shall not be construed to prohibit the payment of more than the rates named.

The attention of the Contractor and all Subcontractors is called to the following laws of the State of Texas relating to labor; Art. 5159a, R.C.S.: Art. 1581a, P. C.; Pat., 5165, R.C.S.; Art 1579, P.G.; Art. 1580, P.C. and Art 1581, P. C. In compliance with the above-cited Art. 5159a, R.C.S., Sec. 2, the Contractor shall forfeit, as a penalty to the Owner, ten dollars ($10.00) for each laborer, workman or mechanic employed, for each calendar day, or portion thereof, such laborer, workman or mechanic is paid less than the rates stipulated hereinafter for any work done under this Contract by him or by any Subcontractor under him.

ARTICLE 40 - STATE SALES TAX EXEMPTION

The Houston Independent School District is exempt from the Texas Sales Tax on any purchase, lease or rental of tangible personal property and will issue Certificates of Exemption from the Texas State Sales Tax on materials furnished by Contractors on School construction projects. The Contractor shall give a written statement to the Architect as to the proration of costs of skilled crafts, labor and materials for the project prior to awarding of a Construction Contract. The Contractors shall obtain Certificates of Resale from their suppliers in order to avoid payment of the State Sales Tax on materials incorporated in School jobs. Failure of the Contractor to obtain Certificates of Resale from their suppliers shall make the Contractor responsible for absorbing the Tax.

HOUSTON INDEPENDENT SCHOOL DISTRICT

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SPECIAL CONDITIONS

1. Special Conditions should amend, supplement or supercede the Uniform General Conditions as necessary for the project to which they apply. Certain Articles of the Uniform General Conditions specifically call for amplification in the General Conditions. These are as follows:

   (1) Article 8 must be amplified to state the particular procedure which the Project Architect wishes to follow when considering substitution of materials or equipment. Architects should avoid vague references to "comparable products" and should be specific about which product of a particular manufacturer is considered comparable.

   Article 8 also covers the methods of payment of utility fees. In the case of sanitary sewer tapping charges and water meter and tapping charges at new schools, the School District will negotiate these charges directly.

   (2) Article 11 should be amplified to specifically require the Contractor to protect and be responsible for damage to the Owner's property when building additions to existing schools or performing modernization or rehabilitation work.

   (3) Article 17 covers liquidated damages and must be amplified in the Special Conditions with the amount(s) pertaining to the project. The amounts should be set after consulting with the owner.

   (4) Article 25 should be amended to require the Contractor to furnish Performance and Payment Bonds in triplicate within 48 hours of the award of contract by the Board of Education.

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(5) Article 35 should be amended to required the Contractor to submit separate Schedule of Values and Applications for Payment, (both on the Owner's form) for each project, considering each new school or addition as a separate project.

(6) Article 39 refers to the Prevailing Wage Rates. The currect wage rate scale published by the Houston Chapter, Associated General Contractors, shall be inserted in the Special Conditions.

2. The scope of the work should be outlined in the Special Conditions. Attention must be given to those items of equipment or site work which the Owner may elect to furnish under separate contract.

3. Temporary water, telephone, sanitary and electric facilities necessary for the conduct of the work should be specified in the Special Conditions. On some occasions it is expedient to tie in to existing facilities at existing schools. If this is done, the Special Conditions must set forth the procedures to be followed and cleared with the Houston Independent School District Administration.

4. When the project consists of an addition or remodeling of an existing building careful consideration should be given to the proper sequence of operations, time limitations, use of site, and protection of existing work so as to cause a minimum of disruption to the operating plant.

5. The Special Conditions should require a job sign for all projects unless the owner directs otherwise. Signs shall include copy furnished by the Owner. No other signs should be allowed on project.

6. The Contractor should maintain a record, to be checked by the Architect, of all changes, alterations, or deviations from the plans and of all existing underground utilities encountered. This record should be sub-

mitted to the Architect who should then furnish the owner with copies.

7. All subjects such as laying out the work, temporary office provisions, watchman services, equipment and scaffolding, shoring, etc., as are appropriate to the project should be included in the Special Conditions.

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ALTERNATES

1. Alternates should always be considered as optional from the standpoint of bidding, but the bidders should clearly understand that failure to bid an alternate may result in the loss of a contract even though their base bid may be the lowest submitted.
2. The type of Alternate to be employed depends on the nature of the work covered. Alternates to add space to a project, (i.e. classroom additions) should be additive to a base bidcovering the bare necessities as to space. Alternates for changes in materials or equipment are generally deductive.
3. Alternate time limit bids should be avoided, but where their use seems expedient, liquidated damages should be set at a rate which is high enough to compensate the owner for the damages actually suffered in the event the deadline is not met. The causes of these damages are such things as the necessity to move temporary buildings, the necessity to provide utility services to temporary buildings which have been moved but not put back into service, the necessity to extend the school day to provide space for pupils, and the necessity to provide transportation for pupils to other school should contracted facilities not be completed on time.

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HOUSTON INDEPENDENT SCHOOL DISTRICT

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DEMOLITION

1. Specifications should require the Contractor to avoid damaging construction adjoining work to be demolished.
2. The extent of the demolition work should be carefully defined.
3. The disposition of all furnishings, equipment, or materials which the owner may wish to re-use on this or other projects shall be determined in conference with the Owner and verified by letter from Architect to Owner. The owner shall be given 10 days notice by the Contractor in cases where the specifications call for the owner to remove equipment from the building.
4. Specifications should require that all material that is not to be re-used be removed from the site by the Contractor.

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SITE WORK

1. Topographic

At new sites, or sites of additions to existing buildings, topographic surveys will be provided by the School District. The request for this information should be made to the Deputy Superintendent for Administration. The office of the School District Controller has available plans on many of the existing buildings. These will be helpful in determining the location of existing underground utilities. These plans should be studied by the Project Architect and all pertinent information should be put on the site drawings of the new building.

It is not deemed advisable to make the General Contractor responsible for any underground utility lines which he may encounter but which are not shown on the drawings, since the Contractors will add contingencies to their bids to cover this situation. Changes in the work necessitated by unforeseen utilities should be negotiated with the Contractor, when the occasion arises.

2. Site Drainage

Plans for site drainage should provide for quick run-off of rainfall at a maximum rate of 4" per hour. Specifications should require that major drainage be constructed by General Contractor when site is cleared and before foundations are installed. Upon completion of construction of the building, necessary re-working of drainage facilities will be required to secure conformance with site planning.

3. Grading

Plans for site grading shall provide for sloping of earth away from building

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and other constructed improvements toward major drainage facilities. Slopes shall be a minimum of .5% except immediately adjacent to buildings where the slope shall be not less than 10% for a distance of ten (10) feet from the face of the building. The entire site shall be rough graded to achieve the rate of slope indicated above unless directed otherwise. Finish grade all areas to be landscaped.

4. Driveways - Parking Areas - Play Areas

Asphalt stabilized shell on cement stabilized shell base. Thickness of base material to be as follows:

Driveways - 8" compacted
Parking Areas - 6" compacted
Play Areas - 4" compacted
(minimum slope 1½" in 10')

Provide for inspection and approval of sub-grade by Architect before any base material is placed. Specifications to provide for adequate compaction of subgrade, and prompt repair of any water holding depressions.

5. Building Elevation

On extremely flat sites careful consideration should be given to existing drainage facilities in the area. An elevation of 18" above natural grade is often necessary to assure protection against flooding.

6. Sidewalks

In general, four foot wide sidewalks are provided around school sites immediately outside the property line where such walks will connect to existing neighborhood walks or where it is reasonable to assume that the area development will provide walks to connect to the school walks in the near future. Avoid walks which encourage crossing adjacent streets in the middle of a block. Provide walks from the perimeter walks to the school at locations where driveway crossings are avoided, where possible. Provide at least 1½" crown in the center of all 4' sidewalks. Sidewalks should be elevated above the existing grade and drainage provided under sidewalks in order to avoid flooding. Provide 6' wide sidewalk connections spaced 30' on center from perimeter sidewalk to curb where it is anticipated that parents will pick up their children after school. Provide sidewalk connections to paved play areas.

7. Covered Walks

Covered walks should be amply wide and low to provide for protection during driving rains. Wood Framed covered walks should be used only where connected to temporary buildings. Steel portions of canopies should be galvanized. In high schools, give consideration to amount of traffic generated by the elements connected by the walk when determing the width. It is not necessary to provide lights under the canopy. Provide broom finish concrete walks in areas of teacher traffic, or where audio-visual equipment on wheeled carts is to be used. Avoid where practical, thresholds in line of traffic between audio-visual store rooms and classrooms where this equipment is used.

8. Fences

Chain link fences are provided where needed by the owner under separate contract.

9. Parking

Provide automobile parking of material mentioned in paragraph 4 for all teachers and office personnel, where programmed. In the case of additions to existing schools, School Administration will direct parking facilities required. Provide bicycle parking, at elementary schools only, to size directed by Administration.

10. Landscaping

The extent of the landscaping at each site should be related to the size of the site. In the case of Elementary School sites less than 5 acres in size, or Secondary Schools less than 15 acres in size, the entire site not occupied by buildings, walks, paved play areas, and parking lots shall be fine graded, using top soil stripped from site where practical, and seeded with Bermuda grass. Small confined areas, such as courtyards, should be developed with trees, shrubbery and paved areas to enhance their effectiveness as educational spaces.

Areas of the site in excess of the limits stated above should be developed with grass planting as directed by the owner.

In the case of Secondary Schools, the finish graded and grassed areas shall include all Athletic fields, the Drill team field (Senior High Schools only), and the Physical Education areas as defined in the Educational Specifications for these areas.

Do not allow the use of "borrow pits" on any sites unless specifically directed by the owner.

EXHIBIT II-K

INTERIOR DETAILS AND MATERIALS

1. Floors

Generally speaking, vinyl asbestos tile floors have been acceptable as a satisfactory flooring material in conventional classrooms, however, consideration should be given to the individual problems of each project before a selection of materials is made. Careful consideration should be given to the matter of color of the flooring since light colors show dirt very easily and dark colors show light dust, such as shell dust. When using vinyl asbestos tile on concrete slabs which are on grade or only slightly above grade, vapor barriers should be used under the slabs in order to prevent the adverse effect on the vinyl asbestos and adhesive by the moisture borne minerals from the concrete slab.

In corridors, restrooms and kitchens, terrazzo has been used with success, and is, of course, very durable and easy to maintain. Ceramic tile and quarry tile have been very successful in kitchen areas also and some colored concrete floors have been used where tight budgets do not allow a better solution. Some monolithic terrazzo has been used in several recently built schools, and, of course, it has been used successfully in other types of building in this area. Terrazzo bases should be avoided because of cost. Ceramic tile bases with resilient floors should be avoided because of the difficulty in achieving dead level floors so that horizontal line at juncture of floor and base is uniform in width.

2. Shades and Blinds

In typical classrooms, glare control devices on windows serve two useful purposes. They not only control the exterior light, to eliminate glare, but they can control the light inside the room so that visual aids such as the opaque projector and movie projector may be used. The school district prefers the use of a vinyl impregnated cambric shade, black in color where room darkening is desired, or ecru where a translucent shade will serve the purpose. Where neither of these colors suits the designers purpose, it is suggested that a heavier opaque material, such as DuPont's "Tontine Triplex" in white, be used. Consider matching color of shades in existing buildings when additions are being designed.

When shades are used with double hung windows and when no overhang protects the windows from sky glare, it is desirable to mount shades on a double roller bracket, slightly above the meeting rail of the window. Care should be taken to leave enough finger room to reach the latch at the meeting rail. Wood rollers and slats should be specified. Shades should be fabricated with a slat hem at both ends of the shade and the roller inserted in the top end and attached to it with staples. Shades should be of such a length that they will overlap the window sill or head, as the case may be, by 12", if fully extended.

3. Hardware and Doors

(1) Locks

In order to minimize maintenance problems, motise dead locks with A.S.A. standard diameter cylinders should be used wherever feasible. Roller latches (similar to Glynn Johnson #31) should be used with the dead locks. Pull bars and push plates used in connection with the dead locks should be attached to the door with 1-1/2" screws

(or through bolts, where feasible). Dead locks must be furnished with thumb which operate to release the lock only. Thumb turns must be installed on the classroom side of classroom-to-hall doors.

Provide for lock to mechanical equipment room to be master keyed to the grand master key system of the Houston Independent School District. Master key all locks in building, except science laboratory storerooms, kitchen storerooms, shop storeroom and athletic equipment storeroom, to building master key. Teachers' cabinet lock sets should be master keyed separately from classroom doors, however, teachers' cabinet keys should pass door to room in which cabinet occurs. In rooms with more than one storage cabinet, all cabinet locks should be keyed alike, however, cabinets in different rooms should be keyed differently. Individual student storage cabinets, such as in chemistry lab, should be keyed individually. Provide sub-master key system for areas such as boys' gymnasium and locker rooms, girls' gymnasium and locker rooms, shop areas and cafeteria. When making additions to existing buildings, specify lock manufacture to match that in existing buildings, where possible, for ease of master keying and maintenance.

(2) Hinges

Do not use aluminum hinges. On exterior doors that receive heavy traffic, use anchor type hinges.

(3) Closers and Holders

Use surface type closers only. Closers should be mounted with through bolts and grommets. (Use floor type door holders, Glynn Johnson #F10, or #F9 or #F40, or equal, cast bronze, rather than overhead holder devices on exterior doors, unless floor holders will be in the

EXHIBIT II-K

way of traffic). When overhead holders are indicated, use GJ 80M, or equal. When using holders with spring loaded rollers keep door bottom no more than 1" above floor. All devices attached to concrete or terrazzo floors should be attached with steel studs and expansion shields. Do not use Rawl plugs. Careful consideration should be given to size of closer in relation to wind conditions on exterior doors. Norton closers are preferred by the Maintenance Department.

(4) Thresholds

Bronze or cast iron thresholds are preferred over aluminum. Do not use interlocking thresholds. Avoid spring bronze weather stripping.

(5) Panic Hardware

Do not use panic hardware on any doors unless required by building code. Where necessary to use panic hardware, use surface type with stainless steel panic bar. Von Duprin #88 panic devices are preferred to other types.

4. Doors

Arrange exterior doors so that they are protected by roof overhang. Recess entrances for further protection, wherever possible. Detail door jambs so that they will lay open against adjoining walls. Avoid step at exterior doors because of difficulty with floor bumper and trip hazard. Where several doors are in a group, separate so that floor holder of one door is not in traffic line with another. Do not use hollow core wood doors except for wardrobe cabinets. Where glass lights are provided in doors or side lights, use either wire glass or tempered sheet glass, depending on the degree of hazard involved. Provide bar protection in front of glass. Where the number of exterior doors is relatively small, such as in double loaded corridor type schools, use metal exterior doors to eliminate the problem of damage to the edge of the door by the use of burglar tools. If doors are not located in a recess where 90° operation will leave door flat against recess wall, door jamb must be detailed to allow 180° operation. Use steel exterior doors in neighborhoods where vandalism is prevalent.

5. Fire Protection

(1) The School District does not desire fire hose protection in new schools, as the equipment is subject to abuse and difficult to maintain. However, in three story construction and in large assembly areas, where required by building code, such protection must be provided. The School District will provide chemical fire extinguishers distributed throughout the building in a manner approved by the Houston Fire Department. Niches should be provided in the corridor walls for extinguishers wherever necessary to keep extinguishers out of the way of traffic.

(2) Manual fire gongs, 10' in diameter, with pull chain, should be provided in each corridor for use when electrical failure prevents fire signal from being transmitted through buzzer system.

(3) The Houston Independent School District has established a policy requiring that all preliminary plans be submitted through Mr. Frank J. Herb, Insurance Advisor to the District, to the State Board of Insurance for the establishment of a preliminary fire insurance rate. Project Architects will be provided the necessary forms to fill out so that Mr. Herb may submit the plans.

(4) All concrete or steel framed buildings must be so designed that they will be rated either "Fire Resistive A", "Fire Resistive B", or

"Semi-Fire Resistive". Consideration should be given during preliminary design phase to the relative cost of the various structural and wall systems and the insurance rate they will carry. Mr. Herb should be consulted as to the various rates that will apply to different types of construction.

6. Toilet Room Design and Accessories

(1) Toilet rooms should be distributed throughout the building in secondary schools so as to make it convenient to use these facilities during the change of class. In the girls' restrooms, a minimum of seven water closets and three lavatories should be provided in each major rest room. In the boys' restrooms, a minimum of three water closets, four urinals and three lavatories should be provided in major rest rooms. If major rest rooms are not located in such a way as to facilitate their use after regular school hours by persons using the auditorium, gymnasium and libraries in the case of secondary schools, or cafetorium in the case of elementary schools, additional small rest rooms should be provided. Where rest rooms are planned to be back to back, the pipe chase between rooms should provide a minimum of 24" clear width for access. Avoid the arrangement of rest rooms in high schools where doors to boys' and girls' facilities are in close proximity to each other. In elementary schools arrange boys' and girls' facilities so that one teacher, standing in the hall, can observe the entrances to both facilities. In elementary schools, locate the major rest rooms in the traffic lines from the classrooms to the cafetorium. Give consideration to the proximity of rest rooms to the playgrounds. In both secondary and elementary schools, maids' rooms should be pro-

vided with service sinks, mop racks, and wood shelves for the storage of supplies. Water fountains are also generally located in the area of the rest rooms for the efficient use of both facilities.

(2) Accessories within the rest rooms should be as follows:

a. Toilet stalls 5'6" high in secondary schools, 4'6" high in elementary schools. Do not provide doors on toilet stalls in boys' rest rooms. Marble toilet stalls have been used successfully in many elementary schools, however, care should be given to their design and installation, in order to minimize the possibilities of damage from vandals. Marble stalls should be a minimum of 1½" in thickness and 10" in width. Stainless steel shoes for the attachment of stiles should be attached with 3/8" plated bolts extending 2" into structural concrete or toggle through structural slabs which are above grade. Bolts should be set in Embeco grout. Partitions should be attached to walls with 3 pairs of clip angles toggle bolted into masonry wall.

In secondary schools, marble toilet partitions have presented more of a maintenance problem and should not be used unless they can be braced to the structure above or braced from partition to partition in such a way as to discourage vandalism. Porcelain enamel partitions have been used successfully, although they are obviously easy to deface. Avoid any partitions which, because of their construction details, encourage the development of rust.

Masonry partitions should be well braced from partition to partition at the free end of the partition and should be provided with steel mortar bed reinforcement and 1/4" vertical steel rod reinforcement into slab a minimum of 3".

b. Each toilet partition should be provided with one Palmer "Notch Oval" #203 paper holder.

c. Each door should be provided with combination bumper and coat hook of cast brass.

d. Provide metal bound mirrors of the theft proof type in each restroom.

e. Provide paper towel dispensers similar to crown "Manu-towel" in each toilet room and above lavatories in cafetorium and kitchen.

f. Above lavatories provide recessed chrome plated soap dishes without plastic trays or recessed ceramic tile soap dishes.

FINISHES

1. Paint

(1) Before any work is started, the Contractor must submit, in triplicate, a program showing the name of the paint manufacturer, and the type of paint to be used on each different surface in the building. This should be furnished to the owner, as a matter of permanent record, upon approval by the architect.

(2) Deliver all materials to site in unbroken original packages or containers bearing manufacturer's labels. Cooperate with Independent Testing Laboratory, to be employed by Owner, in furnishing samples from job for testing. When tests indicate non-compliance with specified minimum standards, materials tested must be rejected and all surfaces already covered with non-complying materials must be repainted.

(3) Where necessary to thin any oil vehicle painting materials, use either pure linseed oil or turpentine unless the manufacturer of the material involved calls for other types of thinners.

(4) Use one paint brand insofar as possible, in any case primers and sealers shall be same brand as finish coats.

(5) Tint each coat of paint a different shade from preceding coat. Secure Architect's approval before proceeding with next coat.

(Note to Architects) Please inform the owner whenever paint coat inspection is called for by Contractor so that a representative of the School District's Maintenance Department can observe the workmanship with you and report to you any deficiencies they notice.

EXHIBIT II-K

(6) Guarantee - The undertaking of a subcontract for painting shall operate as a guarantee (without need for issuance of a separate guarantee) by the painting subcontractor that his work herein described will remain in first class condition, as indicated by the testing procedures herein described, as well as by the observation of the Architect, for a period of two years after completion of the general contract as evidenced by the date of final payment. Failure of work within guarantee period will necessitate repainting by original contractor.

(7) Minimum Performance Standards for Materials. The Contractor shall furnish an affidavit from the material supplier that the materials used will meet the following United States Government Specifications, (Federal Specs) and pass the corresponding TTP - 141 test.

Exterior Primer (Oil) TT-P-25 with mildewcide added.

Exterior House Paint (Finish Coat) TT-P-102 with mildewcide added.

Exterior PVA Emulsion Paint TT-P-005.

Exterior Patex House Paint TT-P-0019.

Interior Alkyd Flat TT-P-30.

Interior Wall Primer TT-P-56.

Interior Semi-Gloss Enamel TT-E-508.

Interior Flat Latex Paint. See testing procedures below.

(8) In the case of interior flat latex paint, Contractor must furnish Architect with a pre-qualification report from an independent testing laboratory, satisfactory to the Architect, covering the following properties. The cost of original testing shall be borne by the contractor, however, any further testing of job samples, subsequent

to acceptance of the material proposed, shall be paid for by the owner. Testing methods to be followed are described in the Appendix of the Program of Quality Evaluation, by Shilstone Testing Laboratory, Inc., Houston, Texas. Revised 2-4-65.

a. Architectural Properties

1. 85° Sheen Test

   Flat - 6 through 10
   Flat Satin - 11 through 15 (use only in areas where extreme soiling conditions are anticipated)

2. Washability Test

   Medium Quality - 4,000 cycle minimum

3. Soil Removal Test - Sheens above 5 must pass.

4. Water Resistance Test - Must pass.

5. Accelerated Yellowing Test - (Applies to white only) - Yellowness index difference - 0.07 maximum.

6. Mildew Resistance Test - Must pass. Provide certificate of compliance.

b. Application Properties

1. Paint Solids Test (By volume) - 30% minimum.

2. Dry Opacity Test - Contract ratio - 0.97% minimum (Test applies to white only)

3. Streaking Test - Must pass.

4. Working Properties - The paint shall be easily applied by brush, roller or spray equipment. The paint shall show no streaks or foam. (No specific test)

5. Appearance of Dried Paint - The paint shall dry to a smooth, uniform finish free from craters and other defects caused by bubble retention. There shall be no "shinners" or flashings and no conspicuous laps or objectionable brush marks. (No specific test)

EXTERIOR DETAILS AND MATERIALS

1. **Roofs: Dead level roofs should be avoided wherever the building design makes it feasible to do so. Insulation fills should be deep enough to assure no "bird baths" are developed. Although no roofing bond should be required, a bonded type roof should be specified and specifications should require that the General Contractor furnish a written guarantee that the structure will be free from roof and flashing leakage or infiltration or drainage of bitumen for a period of two years after completion of the work as evidenced by the date of final payment. Roofing manufacturer's specifications should be followed, especially as to the minimum roof slopes for the various systems.**

On notification by the Owner or Architect of leakage, infiltration, or bitumen leakage, the roofing and sheet metal subcontractor shall take such remedial measures and shall repair and replace such parts of the roofing and sheet metal work as are necessary to stop and prevent further such infiltration of water or dampness or further such bitumen drainage.

It should be clearly understood that the Contractor will not be held responsible for leakage clearly attributable to damage during occupancy by occupants or the public, or for leakage due to hurricane or fire or other natural contingencies of similar nature.

Upon completion of the roofing and flashing work, the Contractor, if requested by the Architect, shall remove, down to roof deck, two square feet of roofing in three different locations where directed by the Architect

for the Architect's inspection. Should inspection indicate possible non-compliance with the specifications, the Owner shall have quantitative and qualitative analysis tests made by an independent testing laboratory whom he shall employ.

After test samples have been removed, the areas from which they were removed shall be properly patched. The patched areas shall comply with the specifications in every manner. Costs of removing samples, patching sample areas, and re-performing any work which the tests indicate are not up to specification standards shall be borne by the roofing subcontractor.

Contractor shall inform Architect when flashing and gravel guard work is complete and shall not install roofing until an inspection of this work has been made by the Architect.

Wherever sheet metal flashing and gravel guards are used, copper is the preferred material because of its permanency, however in certain sections of town the use of exposed copper should be avoided because of the danger of vandalism and theft.

When roof drainage systems employing the use of exterior downspouts are used, sheet metal should be terminated at least 8' above ground level. Cast iron boots or galvanized steel pipe should be used in these areas which are exposed to abuse.

The design of the roof in relation to the adjoining walls should prevent easy access to the roof.

2. Building Plaque: Include the sum of $175.00 for the purchase of a metal building plaque to be installed under the general contract. The description shall include school name, the time of award of construction contract,

Architect's name, Contractor's name, consulting architectural firm name, name of all School Board members at the time of award of construction contract, and the names of the Superintendent, Deputy Superintendent for Administration and Business Manager.

3. Flagpole: New schools should be provided with an aluminum flagpole installed in a galvanized corrugated steel foundation tube with steel lightening ground spike and steel plate support. Halyards should be nylon. Ball should be hollow aluminum mounted on a non-corroding rod attached to the truck. Height should be a maximum of 40'. Pole height should be related to scale of building.

EXHIBIT II-K

WINDOWS

Because of serious maintenance problems connected with projected, casement and awning type windows and because of safety problems in areas of student traffic, Architects should avoid the general use of windows which do not operate in one plane. This limits the window types to single hung, double hung and horizontal sliding, with single hung and double hung offering the better ventilation possibilities.

The following manufacturer's names are representative of whose double hung and single hung aluminum windows have been used by the Houston Independent School District with no serious problems being reported concerning these windows.

Ceco

Cupples

Fenestra

Windalume

Alenco

Porterfield

Lupton

1. Window Construction
    a. Material: All frame and sash, extruded of aluminum alloy 6063-T5 with a minimum thickness of .062". All double hung windows should be DH-A2

type, except that windows over 3' - 6" in width should be DH-A3 type.

b. Connections: Intersections coped or mitered for neat fit and fastened rigidly by s.s. screws, riveting, welding or combination of methods.

c. Waterproofing: At frame corners with non-hardening mastic, tape and caulking.

d. Sash Slides: No aluminum to aluminum contacts. Sash to slide with aluminum against wool pile, stainless steel, nylon or combination.

e. Finish: Exposed surfaces cleaned to uniform color free of deep scratches, coarse die markings and other surface blemishes. To be a rubbed, brushed or cleaned mill finish to eliminate above mentioned flaws. Plain mill finish not acceptable. Use alumilited finish in areas where fumes might corrode finish.

f. Protective Coating: Coat with clear methacrylate lacquer sufficiently thick to resist action of lime mortar for 1 month at 100% relative humidity.

g. Glazing: All glazing should be outside putty glazing, except extruded plastic glazing may be used, if cost and/or time saving warrants its use. All glazing to be back puttied and held with glazing clips. When inside glazing is specified, non-hardening compound is suggested. When outside glazing is specified, it may be a metal sash putty that sets hard; except for "Plexiglas" which requires non-hardening compound at least for back putty.

2. Hardware

a. Material: Stainless steel or white bronze hardware, finished to even, smooth surfaces free of scratch marks, grinding, pits and roughness.

b. Attachment: With stainless steel screws, aluminum or plated screws not acceptable.

c. **Sash Lifts and Pull Down:** Either integrally extruded type, extruded handle or cast handle not acceptable, windows exceeding 3' - 4" in width to have 2 handles. Omit pull down handles when pole operated hardware is used.

d. **Pole Operation:** Wherever the centerline of the meeting rail is over 6' - 0" from floor, provide pole ring in upper sash and locking device for pole operation. (See "H")

e. **Pole Ring:** Designed so pole actually hooks into hold.

f. **Window Poles:** Provide one aluminum tube window pole and pole hanger for each room. Provide 5% spare poles to be turned over to Architect or Custodian only at such time as building can be locked. List poles and lengths on shop drawings.

g. **Regular Locking Devices:** For windows with centerline of meeting rail 6' - 0" or less from floor, single center type or double jamb type. Consideration should be given to effect of any built in bookcases, etc. under windows which make it difficult to reach the lock.

h. **Spring Actuated Locking Devices:** Where height of meeting rail or obstructions below window make it difficult to reach the lock, use latch with spring actuated plunger which engages keeper on bottom rail of top sash, similar to Getty #4903 latch. Ascertain that window specified has an interlock at meeting rail that eliminates possibility of disengaging latch by pushing on meeting rail from outside.

3. **Balances**

a. **Type:** Spiral type, except where Architect specified tape balances, or where sizes are so large as to exceed limits for spiral balances.

b. **Brand:** "Unique", "Caldwell". or "Pullman".

c. **Size and Adjustment:** Check glazing specifications to determine what thickness of glass or plastic is used. Indicate glazing material on shop drawings. Size balances for proper weight of glazing material. Adjust each window after glazing so that sash will not spring up or slip down at any point of operation.

4. Weatherstrip

   a. Types: Silicone-treated wool pile attached to aluminum or stainless steel, back, or spring stainless steel. Vinyl may be used only as auxilliary weatherstrip to wool pile or stainless steel.

   b. Location: All four sides of both sash to have single or double contact whichever is standard with manufacturer for the particular series specified. Provide dust block between sash at meeting rail.

   c. Removable: Must be replaceable without removing window from wall.

5. Erection

   a. Anchors: Aluminum or plated steel. Painted iron not acceptable. Fasten at head, sill, jamb and mullions. Anchorage spaced 24" maximum with not less than 2 anchors each side.

   b. Alignment: Windows set plumb and true with frame square, then securely anchored to prevent movement. Sash to be adjusted to square before glazing. Provide for expansion where window head abuts structural beam which might deflect.

   c. Mastic: Non-hardening aluminum colored mastic shall be buttered on exterior window contacts against metal by window erector. Locations to include metal sills, mullions, jamb angles, plates, lintel angles, etc. Squeezed out mastic to be removed. Caulking against wood or masonry by others.

   d. Protection and Clean-Up: The General Contractor shall be responsible for seeing that windows are properly protected during construction and cleaned of all foreign matter and discoloration. In the event the windows cannot be cleaned to a uniform color, the Contractor shall paint the entire group silver at no expense to Owner.

e. Glazing: Avoid large lites that cannot be glazed with 1/8" DSB glass. Putty glazed windows to have holes for glazing clips.

6. Screens

a. Construction: Extruded aluminum tubular frame 1/8" x 1" x 1/16" minimum. Corners mitered and internally reinforced. Matching size extruded aluminum cross rail at window meeting rail. Screens full top hung type with spring bolt fastening at bottom. Screen frame finish to match windows. 18 x 14 mesh .013 dia. aluminum screen cloth.

b. Location: Kitchens, cafeteria, home economics department. Protect insect screens with expanded metal guards in kitchen areas.

7. Window Walls

a. Structural Design: All portions of window wall systems shall be designed to withstand a wind pressure equivalent to 20 lbs. per square foot (or greater where building code so requires) with a maximum permissable deflection OL 1/180, in addition to supporting all dead loads incident to the window wall system.

b. Glazing: Use 1/8" DSB glass wherever size permits. Wherever glass is within 12" of floor, and at all glass areas larger than 8 sq. ft. in entrance doors or at sidelites, use tempered sheet or safety plate glass.

c. Spandrel Panels: All parts of window wall assembly must be approved as "non-combustible" by the Board of Insurance Commissioners, Austin, Texas. Avoid the use of opaque glass, cement asbestos board, or any other brittle material near grade. Do not use aluminum sheet unless backed up by rigid material.

Consider problems of sealing between back surface of window wall assembly and cabinet work or heating equipment (unit ventilator, fan-coil unit, etc.) when detailing base and mullion.

EXHIBIT II-K

DESIGN STANDARDS
1965

INCINERATOR

Incinerators should be fully steel encased, refractory lined, and mounted on steel skids. All design features should be in strict accordance with the latest published standards of the Incinerator Institute of America, except that for the #200 per hour size (to be used at elementary schools of under 1500 design capacity), the minimum grate area shall be 9.5 sq.ft. and for the 450# per hour size (to be used in secondary schools,) the minimum grate area shall be 12.5 sq. ft. In both cases, the grates shall have a free air opening of not less than 40% of the total burner area. Grates should be supported from the steel casing. Incinerators should be of the inclined front charging type and should be rated at and guaranteed to dispose of the designated weight of type 1 waste as defined by the Incinerator Institute of America. Minimum charging door area shall be 24" x 20". Use counterbalance type door.

Incinerator stack shall be self supporting, 12 gauge steel, lined with a minimum of 2½" of refractory. Stack height shall be a minimum of 25', or 5' above roof line of any building within 10' of the stack.

EXHIBIT II-K

MECHANICAL AND ELECTRICAL DESIGN STANDARDS
1965

Basic Engineering Design Standards

The following standards have been developed for the Houston Independent School District and are published for the information of all concerned. Project Architects and Engineers should give this data careful consideration and if any deviations therefrom are deemed advisable by the Project Engineer, he should so advise the Project Architect, who in turn should advise the Client.

1. Provisions of the revised Uniform Building Code of the City of Houston will govern all projects.

2. Project Architects and Engineers should determine the best types of materials, equipment and construction procedures to be used and give proper consideration to the following data prepared for the Houston Independent School District.

3. Project Architects shall, upon completion of their portion of the construction work, deliver to the office of the Business Manager, one (1) set of 105 MM film negatives and one (1) 24" x 36" print on erasable vellum of the mechanical and electrical plot plan covering the exact as-built location of all lines which are concealed from view. In addition to the foregoing, they shall obtain and deliver to the office of the Business Manager, four (4) sets each of schematic diagrams covering installation of electrical, mechanical or pneumatic controls and control systems; operating instructions for all items of mechanical and electrical equipment and descriptive literature covering all items of mechanical and electrical equipment installed in the project together with printed parts lists covering all items which might be subject to replacement.

4. Soil Tests - To insure adequate and economical design of foundations, Architects may request tests be conducted at each site to determine type of soil, moisture content, bearing capacity and location of ground water table, if any. In areas where expansive soils occur, particular attention must be given to provisions necessary to prevent cracking of foundations, walls, and floors resulting from swelling or shrinkage of soil.

5. Laboratory Design and Inspection of Concrete - The specifications may require that the design of all concrete mixes, control of mixing and pouring operations and testing of concrete cylinders shall be performed by an independent testing laboratory to be employed by the School District. The cost of these laboratory services are to be paid directly by the Houston Independent School District.

6. Storm Sewers - Pipe storm sewers should be sized, if possible, to provide for a flow velocity of not less than three (3) feet per second. Roof drain lines installed in earth under floor slabs or in crawl spaces shall be constructed of extra heavy cast iron soil pipe and fittings with lead caulked joints to a point not less than 10' outside of building foundation. Drain lines under building to be in conformance with requirements of the Houston Building Code. Other storm water piping to be in conformance with materials

and construction methods as provided in Specification E-14-62, Department of Public Works, City of Houston. All storm drain lines are to be subjected to a Hydrostatic Test, before cover up, equivalent to the maximum head under which it will function, plus fifty per cent. This test to be witnessed by the Engineer. Provide for junction boxes with cast iron inspection covers where cast iron soil pipe is joined to other piping outside of building, necessary cleanouts, manholes and other appurtenances. Special attention should be given to any possibility of back flow in storm water lines and necessary flap valves or other approved means be installed to prevent such a condition.

7. Sanitary Sewers - Soil, waste and vent piping inside of buildings to comply with all requirements of the Houston Building Code. Sanitary piping in ground under floor slabs or in crawl spaces shall be constructed of extra heavy cast iron soil pipe and fittings with lead caulked joints to a point not less than 10' outside of building foundation, specifications to provide for proper bedding of pipe in excavated trench and for proper placing and tamping of backfill.

   Sanitary sewer lines, manholes, cleanouts and other appurtenances installed under ground on site outside of building, shall be designed and constructed in accordance with the provisions of Specification E-14-62, Public Works Department, City of Houston, except as noted.

   Any sanitary sewer line 6" and larger that is more than 200 feet away from the sewer tap should have a manhole with a cast iron rim and cover every 200 feet. The invert trough through the manhole should be of a smooth finish with no less depth than half the diameter of the pipe and with all lines teeing in on at no less than a 22½ degree angle with the flow. All cleanouts to be line size; 2" to 6". Any cleanout on grounds should be up to finish grade and caulked in to cast iron riser. Cleanout should be set in a 24" x 24" x 6" concrete steel-reinforced pad on a solid earth base. All cleanouts are to come off of lines by either a "Y" and eighth bend, or a long sweep fitting.

   Plans for underground sanitary sewers will indicate the exact size, location, line elevation and slope of all pipe, manholes, cleanouts and other appurtenances. Elevations must refer to fixed and established bench mark shown on the plans. Specifications should require inspection of joints, bedding and test before backfill is permitted.

8. Water Supply Piping - Use following materials:

   a. Above ground in buildings - Hot and cold water supply
      Type L hard drawn copper pipe
      Wrought copper solder type fittings
      Solder - 95/5

   b. Underground installation - Cold water supply
      2" and under - Type K hard drawn copper pipe
      Wrought copper solder joint fittings
      Solder - Utectic 1800 or Silfos

Over 2"
Type K hard drawn copper pipe
Wrought copper solder joint fittings
Solder - Utectic 1800 or Silfos OR Class 150 Centrifugally cast iron pipe, with Boltite, Fastite, Bell-Tite or Tyton Joints.
Cast iron fittings - Class D with Mechanical Joint

Specifications to provide for coating of bolts on mechanical joint fittings with an approved Bitumastic enamel material to provide additional protection against corrosion.

Provision to be made for adequate anchoring against thrust of all cast iron fittings installed underground by the installation of concrete blocking poured in place against undisturbed earth, or by the use of steel clamps and connecting bolts between each fitting and adjacent straight run of pipe. Clamps and bolts to be protected against corrosion by application of a coating of approved Bitumastic enamel.

Connections between cast iron pipe and copper pipe to be made by use of a standard cast iron to threaded pipe adapter fitting and a standard copper adapter, threaded pipe to solder joint, the two adapters to be separated by a proper insulating coupling.

d. Valves - Above ground in buildings - 2" and smaller - 125 pound bronze - globe or gate with screwed or flanged ends as may be required, non-rising or rising stem as selected.

2½" and larger - 125 pound standard cast iron or ferrosteel body gate valves, bronze trimmed, flanged ends, outside screw and yoke. Check valves shall be swing check type, with bodies and trim meeting size specifications of gate valves.

Below ground outside of buildings - 2" and smaller - 125 pound bronze gate, with screwed ends, non-rising stem. Install in valve box with cover.

2½" and larger - 125 pound standard cast iron gate valve with flanged or mechanical joint ends, bronze trimmed, non-rising stem. Install in valve box with cover.

Check valves shall be swing check type with bodies and trim meeting size specifications of gate valves.

Valve 2" and smaller installed in copper lines to have threaded adapters between valve body and solder connection to pipe.

e. General Notes on Water Supply Piping

(1) Install all water lines in building above ground. Water lines should be accessible to inspection, where possible. No water lines should be installed in or below the foundation slab.

(2) Where it is necessary to install underground water lines beneath concrete slabs of driveways, they should be installed inside asbestos-cement pipe sleeves to provide for easy withdrawal of water pipe without cutting slab or driveway. Underground piping should be kept to minimum.

(3) Water supply line should be manifolded with valve controls so that supply to main building can be cut off for repairs, if necessary, without disturbing supply line to heating boiler.

(4) Each restroom should have individual cold water cutoff.

f. Water Service should be as follows:

(1) Elementary School - Capacity under 1800 - 4" line and 3" meter

(2) Secondary School - Capacity under 2500 - 6" line and 4" meter

9. Corrosion Protection - Dialectric fittings shall be installed to separate dissimilar metals used in underground piping (except gas piping) and where dissimilar metal piping is joined to the metal of water heaters and boilers. Dialectric fittings installed underground shall be coated and wrapped the same as buried pipe.

10. Cathodic Protection - Since, in most instances, it is not possible to define the galvanic anode or rectifier requirements for cathodic protection until the underground facilities are in operation, the original design will provide for the following items;

a. Proper use of insulating fittings, wrapping, coating and appropriate construction practices to isolate the structures to be protected from all other underground metallic objects, such as other piping systems, reinforcing steel, etc.

b. Provision for metallic (electrical) continuity within each isolated section.

c. Provisions at each end of an isolated section for the connection of anodes or rectifier wiring.

11. Utility Installation Fees - In cases where new water or sanitary sewer services must be provided, the School District will negotiate this work directly with the City of Houston. The general contractor shall be required by the specifications to notify the School District where such services are needed. This notification shall be issued early enough in the project so as to afford ample time for negotiations and the contracting and installation of the system.

Basis for Design - Heating and Cooling Systems

Design Temperatures:

Outside air design temperature - 20^{o} F.

Inside air design temperature - 75^{o} F.

Heating and cooling load calculations will be according to the method used in the particular designer's office. These calculations shall fall within the framework for such calculations as established by the A S H R A E.

Unless specifically noted otherwise, all systems in new construction, other than in utility rooms, shops, etc., should be designed for future conversion to air conditioning. Porject Engineer shall include on his drawings the necessary design information to indicate what provisions for conversion have been made and what changes must be made to effect conversion.

Heating Systems for Classrooms

1. For additions to existing buildings-
    a. Check existing heating system. In some cases it may be desirable to install a similar system although a new heat generator may be required.
    b. When using existing steam system and hot water converter, design converter to provide necessary "pick-up" based on firing boiler at 6:00 A.M. and occupying rooms at 8:00 A. M.
    c. Unit heaters or fan coil duct equipment, especially in locker rooms and auditoriums or where functional units occupy wall spaces served by hot water or steam. Electrical or gas fired - special applications.
    d. Unit ventilators.
    e. Fan coil units - avoid exposing horizontal units in room.
2. For new buildings or additions to existing buildings where provision is made for coôling, either now or in the future.
    a. Unit ventilators - syspended or floor mounted - may be concealed.
    b. Fan-coil duct systems. Includes all variations.
    c. Other - electric heaters, gas fired units, radiators or convectors with or without separate cooling systems.

Heating Medium

1. Hot water at a temperature best suited for overall system heat balance. This will fall in the range of approximately 170^{o} to 200^{o} F. supply

temperature with a design differential of 20° . Flow velocity as dictated by good design.

2. Direct gas-fired equipment or electrical resistance heat if and where required.

Heating Systems for Non-Classroom Areas:

1. Heating for the Administrative Offices, Library and Cafeteria or Auditorium can probably be accomplished best by use of a fan-coil-duct system with a single thermostat for control of each area or heating unit. Heat can be furnished from the main boiler. All other types of heating and cooling may be considered for these areas. Careful consideration should be given to the location of the thermostat.

2. Shops, Gymnasiums, Dressing and Shower Rooms, etc.

   Heating systems for these areas will be designed to meet the specific requirements. Unit heaters, unit ventilators, or fan-coil-duct systems should be considered. Heat can be furnished from the main boiler.

3. Particular attention must be given to the heating and especially the ventilation of auditoriums. Ventilation of each school auditorium must be considered as a separate design problem.

Boiler Plant (Hot Water Heater) Gas-Fired:

Size boilers with up to 20% pickup factor, but do not size for future building expansion. If boiler is fired continuously, a lesser pickup capacity is required. Boilers shall be specified to conform to A.S.M.E. requirements and Boiler Law Rules and Regulations, State of Texas and A.G.A. requirements. Specify boiler complete with all usual hot water trim including low-water cut-off and electronic safety pilot and firing controls, all designed to fail safe. Provide safety controls so that gas may not accumulate in the fire box prior to lighting of pilot light. (See separate section on boiler controls). See H.I.S.D. drawing on preferred boiler hook-up and control arrangement.

In all cases, provide separate heating units for space heating and for domestic hot water, each system capable of operation, independent of the other.

Water tube type is preferred.

Drain lines to floor drain should extend into drain a minimum of 1".

Heating System Controls:

1. Provide individual room control with stops on thermostat to provide temperatures in the range of 65° to 85° F. (Alternate, locking cover on thermostat. Set temperature 75°F.) All thermostats to be key operated. Typical mounting height 6'. Thermostats supplied with (without) thermometers, and with heavy guard. Do not mount thermostats in chalk or tack boards.

EXHIBIT II-K

2. Provide for boiler water temperature reset with change in outdoor ambient temperature, if or when required. This control shall be of the electronic type.

3. Boiler shall be fired continuously during heating season. Boiler water temperature should be maintained at a minimum of 130° F. to prevent fire box condensation. This can be done by use of a low limit control or a 3-way valve by-pass around boiler.

4. Control systems may be pneumatic, electric, or electronic or a suitable combination. The least expensive and simplest controls required to maintain comfort conditions are desired. Do not tie controls into school master clock.

5. All heating and cooling control systems and diagrams shall be presented to the Houston Independent School District for comment and approval prior to installation of the control system. This applies particularly to Contractor furnished control systems.

Boiler Controls

Similar to "Rite" EO - 3 combustion safeguard system. See HISD drawing on preferred boiler hook-up and control arrangement.

Cooling for Schools

Design Temperatures:

Outside conditions - 95° db and 80° wb.

Inside temperature - 75° - 77° db and 50% RH. (No RH controls)

1. Type of system:
   a. Unit type - suspended or floor mounted. May be concealed in closet.
   b. Duct systems with fan and coil.
   c. Other, such as package unit or window unit.

2. Type of cooling:
   a. Chilled water (plus hot water heating)
   b. Direct expansion (plus steam, hot water, or electrical heating)
   c. Other combinations

3. Condensers - air or water cooled. Give thought to compact, easily maintained cooling towers. Provide vandalism protection around cooling towers or locate where inaccessible to vandals.

4. Controls and control systems vary as required by the particular job. Will require zone controls, individual room controls and probably capacity control at the compressor.

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5. Design to include consideration of ventilation requirements, with special attention given to auditoriums.

Provisions for Future Air Conditioning

Current policy in the Houston Independent School District requires that all heating systems installed in new buildings and additions be designed for "conversion to air conditioning." Following are the general principles which should govern the design of such a system.

1. Design Conditions - Systems are to be designed on the basis of the following indoor and outdoor temperatures:

   Indoor - 75° F. db 50% humidity

   Outdoor - 95° F. db 80° F. wb

2. Use of Existing Equipment - When considering additions to existing buildings, engineers are encouraged to make maximum use of existing heating equipment where feasible, however careful consideration should be given to the condition of the existing equipment.

3. Code Restrictions - All systems are to be designed to meet the requirements of the City of Houston Building Code. Particular attention should be given to revision of electrical systems.

4. Areas to be Air Conditioned - All spaces in all buildings which are currently served by heating systems are to be served by the cooling systems with the following exceptions:

   a. Elementary Schools

      (1) Toilets (consider wasting conditioned air through exhaust system.)

      (2) Corridors (assume necessary air conditioning from adjacent spaces, except foyers at auditoriums.)

      (3) Kitchens (consider wasting conditioned air from cafetorium.)

      (4) Store rooms, except book rooms.

      (5) Boiler rooms

   b. Secondary Schools

      (1) (See 1, 2, 3, 4 and 5 above)

      (2) Gymnasiums

      (3) Swimming Pools

EXHIBIT II-K

5. **Zoning** - Systems should be so zoned that Administrative offices, Gym Dressing Rooms, and Auditoriums (Cafetoriums in elementary schools) can be used at times when no other spaces are used. Consideration should be given to the long range economies possible if separate systems are provided for these spaces.

6. **Controls** - Systems should be designed for individual thermostatic room controls.

7. **Maintenance** - The design of all cooling and control systems should take into account the necessity to operate these systems with current School District personnel. Past experience indicates that school personnel will occasionally eliminate controls and misuse equipment where the systems are too sophisticated. It is desirable to use a system uniformly throughout a given school plant.

8. **Operation** - Operational costs are extremely important and systems that involve high operating costs whould be avoided even if low original costs are indicated. Engineers should assume a facility usage period of 7 hours a day, 5 days a week, for a full 12 month period. Frequent night use of gymnasiums and auditoriums should be anticipated.

9. **Condensate Provisions** - Careful considerat on should be given to the provision of condensate drains. No provisions should be made for condensate drains that can be made when the system is converted at approximately the same cost as would apply to installation at this time.

Water Piping for Space Heating or Cooling

1. Water lines for supply and return piping 2" and under - Sch. 40 black butt weld or seamless steel, conforming to ASTM A-120, assemble w/screwed fittings; 2½" and over - Sch. 40 seamless, conforming to ASTM A-53, Grade A. Assemble by welding.
2. Cold water supply to boiler (trim piping only) - Sch. 40 galv. steel.
3. Valves

   a. Gate - 2" and under - 150# bronze screwed; 2½" and over - 125# IBBM flanged.

   b. Globe - 2" and under - 150# bronze screwed, composition disc. 2½" and over - 125# - C.I. Body, flanged ends, composition disc.

   c. Check - 2" and under - 125# bronze body, swing check, bronze disc 2½" and over - 125# C.I. body, bronze trimmed flanged.

4. Fittings - Unions - 2½ and under 150# screwed malleable iron. Flanges - 2½" and over 150# ASTM A-181, weld neck or slip-on.

   Ells, tees, etc. - 2" and under 150# screwed malleable iron.

   2½" and over, standard butt weld ASTM A-234.

EXHIBIT II-K

5. For ease of maintenance, control valves and pumps should be flanged, have union fittings, or have unions on both sides.

6. Automatic or manual air vent valves to be installed at all high points in piping. Use petcock for manual vent; provide valve ahead of automatic vent. In general, use automatic vents. Use manual vents only where readily accessible or required by design. Show on drawings exactly where each vent is to be installed.

7. Provide an engineered system of expansion control (expansion joints, swing joints, loops, etc.). Do not leave for contractor to decide where and when expansion control is required.

8. Locate control valves and pumps so that they are accessible for servicing.

9. Provide for coating and wrapping and/or insulating all underground lines. Make certain all joints and fittings are properly coated. Provide for testing of coating by an independent testing laboratory. Underground piping should be kept to a minimum.

10. Provide cut-off valves at boiler, in both supply and return piping.

Gas Piping

1. Interior, exterior and underground lines:

   2" and up - Sch 40 black steel pipe, weld type ells, Weld-olets or weld tees for branch take-offs. Assemble by welding. Under 2" - Sch. 40 black steel pipe with malleable iron screwed fittings.

   Valves in underground pas piping to be installed in concrete box with C.I. cover.

   Provisions for concealing gas piping in floors shall be reviewed with city building officials in order that they may interpret the term "Suitably Covered" in Sec. 54-1807 (c) in the Building Code.

2. At all service regulators installed in gas lines, provide stop valves on both sides of the regulator with a test tee on the low pressure side as shown on sketch. Page 2 of 2. At the boiler provide test tees on both sides of all diaphragm and control valves as follows. Test tee to be 1/2 of a Sch. 80, 1/4" x 4" pipe nipple. Bevel non-threaded and for welding. Weld half nipple to the gas pipe at right angles to the flow line. After half nipple is welded in place, drill a 1/8" hole through the gas supply line by inserting the drill through the opening in the nipple. Screw a 1/4" steel needle valve ("Edward" Fig. No. 153 or "Metric" Fig. No. 28059) onto the nipple and plug the open end with a 1/4" pipe plug. Use acetylene torch for welding.

   Provide unions on both sides of all regulators. Provide a stop valve and test tee at the gas meter outlet.

3. Vent all high pressure (#1 and up) gas regulators to the outside.

4. Where gas piping goes through wall, use sleeve; run gas piping exposed where possible.

5. For underground piping, provide coated and wrapped pipe. Make certain joints and fittings are properly coated. Provide for testing of coating by an independent testing laboratory. Underground piping should be kept to a minimum.

General Notes on Equipment -

1. Vent boiler room so that there is always ample air for combustion. Do not use exhaust fan in boiler room. Provide floor drain in boiler room.

2. Provide in specifications for analysis of boiler flue gas before acceptance by the Houston Independent School District. Burners must be adjusted so that no CO shows up in the analysis and CO_2 and O_2 should be in the range recommended by the boiler manufacturer. This test could be conducted by the boiler manufacturer or his representative or by the Contractor. Copies of test report should be forwarded to the Houston Independent School District.

3. Domestic hot water for all uses including showers must be provided by a water heater that is entirely separate from the space heating system.

4. Piping drawings for refrigeration equipment must be especially clear and show pipe sizes, fittings, valves, etc., exactly. Do not leave any part of refrigeration system piping to be supplied by the Contractors' imagination or at his discretion.

5. Leave working space around boiler, especially room for cleaning or removing tubes. Locate pumps so that they are accessible for servicing.

6. All gas fired equipment should have a positive safety shut-off.

7. Furnish hose bib in boiler room for clean-up.

8. Furnish quick fill by-pass around pressure reducing valve on feed water line.

9. All heating units located more than 5' 9" off the floor will have hinged or chain-hung access door.

EXHIBIT II-K

PLUMBING FIXTURES
HOUSTON INDEPENDENT SCHOOL DISTRICT
ELEMENTARY, JR. AND SR. HIGH SCHOOLS

Numbers used in the following list refer to products of the following manufacturers. Materials must be one of the products listed or written approval of equivalent materials must be obtained from the Project Architect prior to bidding.

Kohler Co.
American-Standard
Crane Co.
Eljer Co.
C. F. Church
Swedish Crucible Steel Co.
(Olsonite)
Imperial-Eastman Corp.
(Watrous)
Halsey W. Taylor Co.
Sloan Valve Co.
Coyne & Delaney
Zurn Industries
Wade Mfg. Co.
Josam Mfg. Co.
Speakman Co.
Haws Drinking Faucet Co.
Jay R. Smith

WATER CLOSETS

WATER CLOSETS - MARK "A" BOYS AND MEN

(For use in all locations)

Fixture: Floor type; siphon jet; elongated bowl; 1½" top spud; white

AMERICAN STANDARD	CRANE	KOHLER	ELJER
F-2223 "Madera"	3-300 "Stanton"	K-4280-ET "Penryn"	E-5910 "Sanus"

Flush Valve: Quiet Diaphragm Type, 1" screw driver stop, with protective cap and vacuum breaker. To rough 24" above bowl, and 1½" spud connection.

SLOAN	DELANEY	WATROUS
Royal 115 QYFYV	Flushboy 414 AVBQ	*Neptune M-353 VBX

* Do not supply adjustable nipple with any Watrous flush valve.

Closet seat: White, open front, less cover, self-raising hinge, for elongated bowl.

CHURCH	OLSONITE
8200 White Moltex	No equal
396 Wite Plastic	1650 White Plastic

EXHIBIT II-K

WATER CLOSET - MARK "AA" BOYS

(Alternate for use in place of Mark "A" when specified by the Houston Independent School District).

Fixture: Wall hung: siphon jet; vitr. china; elongated rim; 1½" top spud; white.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
F-2495 "Glenco"	3-450 "Walton"	K-4420-ET "Kingston"	E-6710 "Auburn"

Flush Valve: Same as Mark "A"

SLOAN	DELANY	WATRUS
Royal 115 QYFYV	Flushboy 414 AVBQ	Neptune M-353VBX

Closet Seat: Same as Mark "A"

Chair Carrier: Single or Double, Fixed or adjustable to suite riser diagram.
Adjustable (Horizontal or Vertical)

ZURN	JOSAM	WADE	SMITH
Z-1205 or Z-1206	C-700 or C-800	W-311 or W-340	5A-H or 5A-V

Fixed Vertical

ZURN	JOSAM	WADE	SMITH
Z-1208 or Z-1209	C-850-W	W-350 or W-360	5A-VRO or 5A-U

WATER CLOSETS - MARK "B" GIRLS

Same as Water Closet Mark "A", except as follows:

Closet Seat: White open front less cover with check hinge, for elongated bowl.

CHURCH	OLSONITE
9500 White Moltex	95 White

WATER CLOSETS MARK "BB" GIRLS

Same as Water Closet Mark "B", except seat as under Water Closet Mark "AA"

Chair Carrier: Same as Water Closet Mark "AA" Boys.

WATER CLOSET - MARK "C" MEN

(Optional for use in place of Mark "A" in places where noise is major problem and Architect considers tank type more desirable. Typical locations: Kindergarten, Principal, Clinic, Teachers.)

Fixture: Floor type: tank and bowl combination: siphon jet; elongated bowl; 3/8 angle supply with stop; white.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
F-2109 "Elongated" Cadet	3-127 "Drexel"	K-2675 - EB "Bolton"	E-5355 "Emblem"

Closet Seat: Same as Mark "A"

WATER CLOSET - MARK "CC" WOMEN AND CHILDREN

Same as Water Closet Mark "C"

Closet Seat: Same as Mark "B" Girls

URINALS - MARK "D" & "E"

Group Student and Public Toilets. Typical locations: Student Toilets, Auditorium Area, Gym Area, Teacher's Toilets)

URINALS - MARK "D"

Fixture: Wall type: siphon jet; 1-1/4" top spud; white.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
F-6240 "Alta"	7-105 "Manhattan"	K-5015-R "Dexter "	E-8190 "Dover"

Flush Valve: Quiet Diaphragm Type with 3/4" screw driver angle stop with protective cap, less vacuum breaker, but with 3/4" spud connection.

SLOAN	DELANY	WATROUS
Royal 185 QYF	Flushboy 541 AQJ	Neptune 349-X

Chair Carrier: Two uprights, foot type carrier, with hanger plate and plate for bearing screws.

ZURN	JOSAM	WADE	SMITH
Z-1222	C-228	W-452	7 A-S

Note: Mark "E" could be washdown type urinal. Flush valve same as M "D".

LAVATORIES: Mark "F" (Alternate - 2 or 3 MARK "G" w/metering faucet)

(Group Student and Public Restrooms. Typical locations - Student Toilets; Auditorium Area, Gym Area, Shops, Cafeteria.)

Fixture: Cast iron trough type; acid-resisting enamel; performated grid strainer; cast brass P trap with cleanout; two (2) faucets for 48"; three (3) faucets for 60" or 72"; white; omit soap dish.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
P-8500 "Carnegie"	6-300	K-3200 "Brockway"	E-1802 "Blaine"

Support: Attach with toggles to reinforced wall or use chair carriers. Provide holddown attachment at each end using special brackets if necessary.

Faucets: Cold Water only; metering faucet; extra heavy nipple, Speakman S-2100.

Chair Carrier: (If specified) Three upright, foot-supported carrier with hanger plate and white vitreous enameled arms. Provide tie-down anchors as required.

ZURN	JOSAM	WADE	SMITH
Z-1229-1 Modified	C-424 Modified	W-613-3B Modified	7E-3 Modified

LAVATORIES MARK "G"

Teacher and Employee Lavatories; Typical locations: Teachers' Lounge, Principal's Toilet, Gym Teachers, Kitchen Help, Maids Rooms, Clinic Toilets.

Fixture: Wall Type: acid-resisting enamel; 19 x 17"; faucet hole cover; open grid strainer; cast brass P trap with cleanout; 3/8" supplies with stops and chrome plated nipple to wall. 20" x 18" optional with Contractor.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
P-4867 "Regalyn"	---	K-2851 "Hudson"	------

Faucet: Cold water only; renewable seats and washers; chrome plated; indexed "C".

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
R-2210	8-2203	K-7510	E-9370

Chair Carrier: Two upright, foot-supported carrier with porcelain enameled arms and tie-down lug adaptors.

ZURN	JOSAM	WADE	SMITH
Z - 1236	C - 310	W-511	10

LAVATORIES MARK "G-H"

(Use where hot water supply is very close to fixture location.)

Same as Lavatory "G" except as follows:

Faucet: Hot and cold water combination; spray spout; brass body and handles; perforated grid strainer.

AMERICAN STANDARD	CRANE	KOHLER	ELJER
N - 2098	8-2064	K-7409	-----

Chair Carrier: Same as Mark "G"

LAVATORIES - MARK "G-L"

(Use where lever operated faucets are desirable. Typical locations: Nurses' Office, Kitchen.)

Same as Lavatory "G" except as follows:

Faucet: Hot and cold water combination; lever operated.

AMERICAN STANDARD	DELTA
N-2051	100-6

Chair Carrier: Same as Mark "G"

SINKS

Sink - Mark "H"
(Use in Kindergarten)

Fixture: 24" x 20" or 24" x 18" - Optional with contractor; flat rim ledge sink; acid resisting enamel C.I., or stainless steel; s.s. clamping frame; 4" strainer with non-removable grid; 1½" dia. tailpiece; cast brass trap with cleanout; c.w. gooseneck faucet; self closing bubbler.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
P-8490 "Ledgeworth"	5-195 Classroom	K-5990 "Tech"	-----

SINK -- MARK "HB"

Use in Teachers' Work Room; Clinic and similar locations.)

Same as Fixture "H" except as follows:

Faucet: Self-closing gooseneck glass filler only, omit bubbler and replace with faucet hole cover.

SINK - "H-H"

(Use in Teachers' Work Room and Clinic when hot water supply is close.)
Same as Fixture "H", except as follows:

Faucet: Hot and cold water combination; gooseneck fitting with aerator.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
R-4300-A	8H2221-A	K-7894	E-9362-A

DRINKING FOUNTAIN

Fountain -- MARK "J" (Indoor and outdoor locations)

Fixture: Trough type, acid resisting enameled cast iron, with angle stream anti-squirt bubblers; splash approximately 4" high. Bubblers to be self closing; automatic volume control; loose key stop where supply comes through wall; cast brass trap with cleanout. Mount on brackets that hold down. Freeze proof valves not desired, but fountain piping designed so that it can be drained with loose key stop. Provide keys for each fountain. Provide four (4) bubbler units approximately 14" apart. (Alternate, if desired by the Houston Independent School District - 3 bubbler unit, overall length approximately 44".)

	4 BUBBLERS	3 BUBBLERS
HALSEY TAYLOR	No. 4704	No. 4703

EXHIBIT II-K

Electric Cooler Fountain Mark "K"

(Use in high school cafeteria and H.S. office only, proposed for future cooler at all interior D.F. locations).

FIXTURE Wall mount type; self closing bubbler with automatic stream regulator; anti-squirt bubbler; 3/8" supply stop; 1 1/4" P, trap; adjustable temperature control - or + 10° from 50°; compressor hermetically sealed, lubricated for life; refrig. system 5 year guarantee; capacity based on 80° inlet supply, 90° room temperature, 60% waste thru pre-cooler, cooling to 50° F. water; capacity to be minimum of 11.0 gallons per hour; 115 V. 60 cycles single phase A. C. unless specified otherwise.

Following is list of brands and models acceptable provided they are in conformance with above specification:

HALSEY TAYLOR	No. WM 11A	SUNROC	SO-12
CORDLEY & HAYES	WH-13	WESTINGHOUSE	WL 11D
HAWS DRINKING FAUCET	HWT-13		

NOTE Provide proper chair carrier or mount on wall.

SERVICE SINKS

SERVICE SINK -- MARK "L"

(Cold water only except where hot water supply is close)

Fixture: 22 x 18" acid-resisting enameled cast iron with stainless steel rim guard.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
P-7705 "Argo"	7-563	K-6716-A	E-2700

Faucets: Rough brass double faucet; threaded spout; pail hook, stops in shanks.

AMERICAN-STANDARD	CRANE	KOHLER	ELJER
R-5077	-----	K-8925	E-9701

Trap Standard: 3" enameled trap; perforated grid strainer; cleanout plug.

MISCELLANEOUS

FLOOR DRAINS

Equipment rooms: heavy duty all cast iron with inside caulk connection, flashing clamp if required:

ZURN	JOSAM	WADE	SMITH
Z-508	610	W-1430-T	

Toilet Rooms, etc.: Cast iron body, caulk connection, round nickel bronze adjustable strainer, flashing clamp as required.

Size 3" x 5" dia. strainer
Size 3" x 6" dia. strainer
Size 4" x 8" dia. strainer

ZURN	**JOSAM**	**WADE**	**SMITH**
ZN-415	300	W-1100	

ROOF DRAINS

Heavy Duty Cast Iron with dome strainer, gravel guard connection as required. Underdeck clamp where necessary.

ZURN	**JOSAM**	**WADE**	**SMITH**
Z-100	4110	W-3500	

Hot Water Service:

(a) Domestic Water Heater for Kitchen Area
Similar to BOCK Model 130G gas-fired 390,000 BTU/hr input 100 gal. storage, 328.2 GPH recovery at 100 deg. F. rise, AGA approved, 9" transite flue and 16 oz. copper flashing jack and cap, equipped with automatic T&P valve. For 180 deg. F. water installation specify two thermostats. Provide Domestic Hot Water circulating pump.

Alternate Scheme - Use two Bastian Morely Model 565 GD Units.

(b) If a Custodian's closet is located near the kitchen area, provide hot water from the kitchen heater to the service sink in that closet; if not near the kitchen area, then provide hot water to service sink in Custodian's work room.

(c) Provide hot water to washing machine and service sink in laundry room in kitchen service entrance.

(d) Electric Water Heater - Clinic Area: Equal to Hotstream Model TS-5EM-UL electric water heater 5 gallon capacity, with thermostat, 1200 watts, 115 volts, single phase, UL approved and equipped with temperature and pressure relief to be piped to discharge into service sink.

Install in pipe chase between boys' and girls' toilet rooms nearest the administrative area, suspended from roof or second floor construction at a high level so as not to obstruct working room in chase. Provide an insulated supply line to sinks in nurse's office and teachers' work room with branch to service sink in custodian's closet adjacent to pipe chase.

Hose Bibbs: (Interior) Locate in each public and group toilet room and in locker rooms; 18" above floor; clear of fixtures; c.w. only in toilet rooms except where h.w. supply close); h.w. and c.w. in locker rooms; shielded valVe stem with removable keys.

Hose Bibbs: (Exterior) Provide h.w. and c.w. in area of garbage can storage; provide sprinkler outlets approximately 150' c.c. around perimeter of buildings; shielded valve stem for removable key; recessed box not required.

Shower Heads: Non-movable; vandalproof, self cleaning; head shape built snug to wall to prevent vandalism; similar to Speakman S-2245; Sloan AC-110; consider Speakman "AutoFlo" individual volume control.

Shower Controls: Volume control mixing valves; vandalproof; individual stops; master shut-off valves for groups of showers and master thermostats for all showers located in gym offices.

Water Cut-off Valves: Control each restroom or back to back restroom and all fixtures and water faucets with a single stop valve whenever possible. Provide a typed or printed list enclosed in clear plastic and attached to each such valve, showing exactly what fixtures are controlled by the valve.

Wall Hung Water Closets: These closets must be supported by back-up washer and nuts. The bowl must be clear of the wall at all points and set to exact roughing in dimensions. Bowls are set with the factory made and recommended setting seal that is furnished with the fixture. NO SUBSTITUTES ALLOWED.

Wall Hung Urinals: Same as wall hung water closets.

Urinal Waste Lines: Size urinal waste lines so that the entire battery can be operated for a period of 5 minutes with no manipulation of stops or throttling devices. This includes back-to-back installations. In no case should more than 3 urinals be connected to a 2" line.

Pipe-Chase: Each pipe chase should be readily accessible with an inside clearance of 24". Do not block entrance with pipe. Stagger riser and drop lines from side to side as required.

Fasteners: Fasteners for pipe straps, fixtures and trim of any description to be toggle bolts or hammer driven all metal expanding wedge type fasteners. NO SUBSTITUTES ALLOWED.

Cleanouts: Cleanouts should be cast iron with a brass screw type cover. Cleanouts should be installed at the end of each battery of fixtures such as lavatories, urinals, commodes or any type of sink. A cleanout should be installed at the end of any line and/or every 75'. Install a cleanout at all grease trap outlets. All cleanouts from 2" to 6" to be line size.

Cleanouts in building to be readily accessible either at finish floor level or through wall. Cleanouts in chase should not be more than 2' from entrance.

Cleanouts at grease trap outlets should be two way type that allows rodding towards trap as well as towards main sewer.

Electrical Standards - General

1. Classroom Lighting - See Classroom Illumination

2. Other Room Lighting - In general conformance with classroom lighting using same fixture, ballasts and tubes wherever possible.

3. Lighting Fixtures - Avoid having a big variety of different fixture types ballasts, tubes and lamp bulbs so maintenance department won't need huge inventories. Avoid peculiar bulb types not readily available from normal sources. Do not use lamps over 48" in length.

4. Fixture Heights - Avoid use of light fixtures within reach of students. 7' - 6" or higher would be desirable.

5. Outside Lighting - keep outside lighting to a minimum since schools are not used to any extent at night. A few scattered lights to discourage vandalism are sufficient. Reflector bulbs in weatherproof sockets or cast aluminum fixtures seem most appropriate since fixtures become broken or corrode away. Mount above 8' - 9" so a ladder is needed to reach bulb. Avoid fixtures in canopies or covered walks where they might easily be damaged. Reflector bulbs mounted on building shining at walks are suggested.

6. Room Fan Receptacles - Do not overload room receptacles which are used primarily for fans. Assume 2 fans running in every room simultaneously,

7. Switches - In public areas such as toilets, halls, stairs, etc., use key operated switches mounted at 5' - 0" or switch at branch circuit panel only. Do not locate switches in chalkboard or tackboard.

8. Branch Circuit Panels - Locate in Janitor's closet or similar locked room. Not in toilet rooms, halls or stairs. Use surface mounting for easy access in rewiring. Where panel is exposed to view from hall, it could be enclosed with wood for presentable appearance. Leave spaces for additional future circuits.

9. Outside Receptacles - Provide one outside weatherproof receptacle near play area and near paved courts (when they occur). Mount 7' - 9" high to reduce vandalism.

10. Appliance Receptacles - When appliance outlets are for residential household equipment normally requiring 220 - 230 volts, 208 volts has proven unsatisfactory. It is suggested booster transformers be used to bring voltage up to 230 volts. Appliances affected are window A. C. units, electric clothes dryers, ranges, ovens etc. Specify proper electrical outlets for both air-conditioners and dryers.

11. Clocks - No clock systems to be installed. Provide clock receptacles only for plug-in clocks by Owner. Provide clock receptacles in each classroom, walls at ends of corridors, in cafeteria, shops, auditorium, offices, etc. Mounting heights 7' - 6" or higher - to reduce breakage.

12. All large transformers inside the building should be set adjacent to a wall and not in the middle of the room. Location should provide for proper ventilation. Try to locate where custodians are not tempted to use them for storage shelves for clothes, buckets, etc.

13. Do not use mercury vapor lighting without prior approval of the Houston Independent School District.

EXHIBIT II-K

14. Provide 220-230 V. outlets for window air conditioning units as follows:

Principal's office	1
Secretary's office	1
Clinic	1
Library	4
Teachers' workroom	2 (1 for A/C; 1 for kiln)
Teachers' Lounge	1

Locate outlets adjacent to windows where air conditioning units could be mounted in the future.

In Kindergarten locate receptacles higher above floor.

Electrical Standards - Classroom Illumination for Elementary and High Schools

The foot candle level is calculated on the basis of recommended reflectance values for classrooms. In the event darker finishes are used, the Architect is cautioned to increase the lighting. It is further recommended that glossy finishes be avoided.

Recommended Reflectance Factors

Ceilings:	85% (70 -- 90%)	Chalkboard:	15% (5 -- 20%)
Window Wall:	80% (75 -- 85%)	Tackboard:	40% (30 -- 60%)
Other Walls:	60% (50 -- 70%)	Student Desk Tops:	40% (35--50%)
Floor:	30% (20 -- 50%)	Other Furnishings:	35% (25--40%)
Trim:	40% (30 -- 60%)		

General Data

1. Footcandle Level: 40 - 45 sustained, 60 - 70 original design.

2. Fixture Type: Two row fluorescent all metal body, metal sides and metal louvers; minimum 20 gauge steel, bonderized; louver length maximum 48" (nominal); louvers must hinge or hang from chains for re-lamping, baked white enamel finish for entire fixture.

3. Fixture Support: Surface or stem optional with Project Architect. For surface mount type, provide top plates that cover entire top and eliminate all light leakage at top. Fixture attachment must be to structural members or 1½" runner channels. No attachment to ceiling materials or exposed tee system permitted. Fastening method should be positive with lock washers or other devices to prevent fixtures from working loose and swinging down to injure people. Method of supporting fluorescent fixtures to be approved in writing by the Architect.

4. Stem Mounted Fixtures: Provide stems on 4' center maximum with alignment hangers. First stem within 12" from ends of fixtures.

5. Fluorescent Lamps: - 48" T--12, cool white, rapid start.

6. Ballasts: "B" sound rated, with C.B.M. label. Drip proof ballast, internally fused.

EXHIBIT II-K

7. Lampholders: silver plated contacts.

8. Fixture Protection: Buss HLR holder with GLR fuse in each fixture, or thermal protected.

9. Service Voltage: 277/480, 4 wire, three phase.

10. Tumbler Switches: One only each classroom not exceeding nine (9) eight foot fixtures; switch shall be rated 20 amp., 277 volt, alternating current only.

11. Shielding: Louver shielding for fluorescent fixtures shall not be less than 30° crosswise - 34° lengthwise.

12. Samples: Contractor to submit working sample of fixture for approval and anchorage method.

Fixture Brands: It is recommended that typical fluorescent fixture be specified by the above engineering considerations without reference to brand in order to get maximum competition.

In the event that certain fixtures appear vastly more desirable, or undesirable, from the group bid in competition. It is suggested that these unique ones be singled out for alternate bids.

ADVERTISEMENT FOR BIDS

The Houston Independent School District will receive sealed bids in duplicate on the following projects until______________________________, said bids to be received at the office of the Board of Education, Room 238, 1300 Capitol Avenue, Houston, Texas and to be publicly opened and read:

A certified check payable to the order of the Houston Independent School District, or an acceptable bidder's bond, in an amount not less than 10% of the greatest amount of bid submitted must accompany each bidder's proposal. A performance and payment bond in an amount not less than 100% of the contract sum, conditioned upon the faithful performance of the contract, will be required. Not less than the prevailing rates of wages as determined by the Houston Independent School District shall be paid on the projects in conformity with the laws of the State of Texas.

Bidding Documents for the above projects, drawings and specifications may be obtained by prospective General Contract bidders from the Project Architects at__________________ Houston, Texas by depositing a certified check for $___________with the Project Architect for each set of documents so obtained. The amount of this deposit will be returned to each actual bidder who returns the plans and documents, including addenda issued during the bidding period, all complete, fully assembled in proper order and in good condition, to the office of the Architect within ten calendar days after bid opening. Checks shall be made payable to____, Architect.

All bids, whether mailed or delivered, must be in the hands of the undersigned not later than the above specified time for above project. All bids should be sealed and marked on outside of envelope____
____

Bids shall be clearly marked on outside of envelope as to the name of project bid. No bid shall be withdrawn for thirty (30) days after opening of bids without consent of the Houston Independent School District.

The Owner reserves the right to reject any and/or all bids and to waive any informalities in bidding.

Business Manager

EXHIBIT II-L

SCHEDULE OF VALUES

(totaling the contract price)

Contractor: ______________________________

Project: ______________________________

Total Contract Price: ______________________________

Items: Trade Subdivisions; Subcontracts	**Number of units and units of measure.**	**Labor**	**Material**	**Other**	**Totals**
*					
TOTALS					

*** If necessary, indicate "Subtotals Carried Forward."**

CERTIFIED as correct and properly distributed:

____
Contractor.

Totals APPROVED for use on Applications for Payments:

____
Project Architect

EXHIBIT III-A

BUILDING CONSTRUCTION CONTRACT
HOUSTON INDEPENDENT SCHOOL DISTRICT

THE STATE OF TEXAS ꞁ

COUNTY OF HARRIS ꞁ

THIS CONTRACT AND AGREEMENT made and entered into this_____________ day of_____________________by and between the Houston Independent School District, a body corporate operated under and by virtue of a Special Act of the Legislature of the State of Texas, acting herein by and through the President of its Board of Education, thereunto duly authorized, and hereinafter referred to as "Owner", and

W I T N E S S E T H

WHEREAS, the Owner heretofore called for bids to be opened at__________ __________________________for construction of

located on the property of the Houston Independent School District in Houston, Texas.

WHEREAS, the Contractor duly and in the form prescribed, submitted a bid in the amount of

WHEREAS, the Contractor agrees that the total Contract amount for said school shall be

(said amount being the agreed upon Contract Sum for the work unless otherwise changed or altered).

WHEREAS, the Contractor further proposed and agreed to complete all work included in the Contract within__________________________________days.

NOW, THEREFORE, the Owner and the Contractor for the consideration stated herein agree as follows:

EXHIBIT III-B

I.

Scope of the Work: The Contractor shall furnish all materials, tools, appliances and facilities and perform all of the work and services required for completion of the project in strict accordance with the Contract Documents prepared by

acting as and in these Contract Documents, entitled the Architect, and shall do everything required by this Agreement, the General Conditions of the Contract, the Specifications and the Drawings prepared by

on the property of the Houston Independent School District located as follows:

together with appurtenances thereto, all in accordance with the General Conditions, Special Conditions, Specifications, drawings, Addenda identified hereinafter.

II.

The Contract Price: The Owner shall pay the Contractor for performance of the Contract subject to additions and deductions provided for in the General and Special Conditions of the Specifications, in current funds, the sum of

Dollars.

III.

Method of Billing: In order to comply with the requirements of the State Sales Tax, and to take advantage of the exemption provided for in Ruling No. 9, issued by the Comptroller of Public Accounts, State of Texas, the Contractor states that the total amount of material to be used on this job, for which he will receive a certificate of exemption from the Houston Independent School District, will be

Dollars,
and the total amount for skilled crafts and labor will be
Dollars.

EXHIBIT III-B

IV.

Time of Completion: The work to be performed under this Contract shall be completed within Days,

and work shall be commenced on the date above stated to-wit; the____________ day of_________________________, 19________.

V.

Liquidated Damages: The Contractor has proposed and hereby agrees to complete all of the work included in the Contract within

Calendar Days, and further agrees to pay to the Owner as Liquidated Damages, and not as a penalty, the sum of Dollars

for each day the completion of the work described in this contract is delayed after
days, that being the time agreed upon for the completion of said work. The parties agree that it is impossible to accurately determine the damages which the Owner shall sustain as a result of any delay, and such amount of

per day has been agreed upon by Contractor to the Owner in the event of any delay. The deductions for Liquidated Damages, if any, shall be subject to the Provisions of Article 17 of the aforementioned General Conditions entitled "Time Limit, Liquidated Damages, Extension of Time."

VI.

Progress Payments: The Owner shall make payments on account of the Contract as provided for and set forth by Article 35 of the aforementioned General Conditions entitled "Terms of Payment", in amounts, at times and under conditions as set forth therein.

VII.

Acceptance and Final Payment: Application for and the receipt of final payment shall be due and will be paid as set forth in Article 35 of the General Conditions after the Contract has been fully performed and work provided for therein has been fully completed as certified to by the Architect. The request for final payment and the subsequent approval thereof shall be subject to and contingent on all of the provisions set forth in the aforementioned Article 35 of the General Conditions.

EXHIBIT III-B2

VIII.

The Contract Documents: The General Conditions of the Contract, the Special Conditions of the Contract, the Specifications and the drawings, together with this Agreement and any Addenda thereto or hereto form the Contract, and they are as fully a part of the Contract as if hereto attached or herein repeated. The following is an enumeration of the said General Conditions, Special Conditions, Specifications, Drawings and Addenda to Drawings and Specifications prepared by

acting as and in the Contract Documents entitled the Architect:

DRAWINGS AND SPECIFICATIONS ARE: See list of Contract Documents attached hereto and made a part hereof for all purposes.

Bond: This Contract shall be null and void and of no force and effect until Contractor shall have furnished bonds as required by said Specifications and said bonds shall have been approved by the Board of Education of the Houston Independent School District or its duly Authorized Agent.

TO CERTIFY WHICH, in testimony whereof, the parties hereto have caused these presents to be executed in duplicate on the____________day of ____________________19_____.

ATTEST:

HOUSTON INDEPENDENT SCHOOL DISTRICT
(Owner)

____
Secretary, Board of Education

____
President, Board of Education

ATTEST:

(Contractor)

____

____

____

____

APPROVED:

____
Business Manager

____
Attorney, Board of Education

EXHIBIT III-B3

LIST OF CONTRACT DOCUMENTS

SPECIFICATIONS
SECTIONS

A1	The Project	Page 1
A2	General Conditions	Page GC. 1 - GC. 21
A3	Special Conditions	Page 1 - 12
B1	Demolition	Page 1
B2	Excavation and Grading	Page 1 - 3
B10	Storm Drainage	Page 1
C1	Concrete	Page 1 - 8
C14	Insulating Concrete	Page 1 - 2
C16	Structural Steel	Page 1 - 3
C17	Steel Joists	Page 1 - 2
C18	Steel Deck	Page 1
C28	Rough Carpentry	Page 1 - 2
D1	Waterproofing and Dampproofing	Page 1 - 2
D4	Board Roof Insulation	Page 1
D5	Built-Up Roofing	Page 1 - 3
D11	Corrugated Plastic Roofing	Page 1
D13	Sheet Metal Work	Page 1 - 2
D14	Weatherstripping	Page 1
D21	Caulking	Page 1 - 2
E1	Masonry	Page 1 - 5
E12	Window Wall Panels	Page 1
E19	Glass and Glazing	Page 1
F4	Hollow Metal Doors and Frames	Page 1 - 3
G1	Miscellaneous and Ornamental Metals	Page 1 - 2
H2	Furring and Lathing	Page 1 - 2
H3	Plastering	Page 1 - 2
H6	Acoustical Ceiling	Page 1 - 3
J1	Finish Carpentry	Page 1 - 3
J9	Millwork	Page 1 - 3
J10	Finish Hardware	Page 1 - 5
J11	Painting and Finishing	Page 1 - 6
J14	Resilient Floor Covering and Base	Page 1 - 2
K1	Built-In Specialties	Page 1 - 3
L2	Science Laboratory Equip.	Page 1 - 7
P1	Special Electrical Mechanical Requirements	Page 1 - 8
Q1	Electrical	Page 1 - 14
S1	Mechanical	Page 1 - 15

EXHIBIT III-B

HOUSTON INDEPENDENT SCHOOL DISTRICT

CONSTRUCTION PROGRESS REPORT

Month ____________

Date ____________

PROJECT ________________________________

Architect ________________________ Report # ___

Gen. Contractor ________________________________

Anticipated Occupancy Date ____________________

On Schedule ☐ Behind ☐ Ahead ☐

Contract Construction Time ______ Day

Approved Extensions ______ Day

Total ______ Day

Elapsed Time ______ Day

	WORK IN PROGRESS AND MATERIALS DELIVERED	Weather	Inspecting Personnel
Monday Date			
Tuesday Date			
Wednesday Date			
Thursday Date			
Friday Date			

List here major stages of construction due to start or be completed during the subsequent week.
1.
2.
3.
4.

Signature

List any difficulties pertaining to delivery of fixtures and equipment.
1.
2.

Please submit this report in duplicate to the Director of the School Building Program, Room 229, 1300 Capitol Avenue on the Friday of each week.

EXHIBIT IV-A

MODIFICATION OF CONTRACT

This CHANGE ORDER, dated as of____________________________, is issued to the following named Contractor:

____

for the following named Houston Independent School District Project:

____

and constitutes authorization to effect, according to the terms of the contract between Houston Independent School District and the said Contractor, the following SPECIFIED CHANGE(S) IN THE WORK:

On account of the above specified change(s), in the work, the adjustment in contract price authorized is:

A net Addition of____

A net Deduction of____
(the line filled in with the word "none" being considered void).

ACCEPTED:
CONTRACTOR:

____

By______________________________
Approval Recommended:

____
Project Architect

____
Consulting Architect

BOARD OF EDUCATION OF
HOUSTON INDEPENDENT SCHOOL DISTRICT

By______________________________
Business Manager

By______________________________
Deputy Superintendent

EXHIBIT IV-B

APPLICATION FOR PAYMENT

ESTIMATE No.__________ **Contractor:**____

Project:____

Period: beginning__________________________, **ending**________________________

	COL. 1	COL. 2	COL. 3	COL. 4	COL. 5
Items: Trade Subdivisions; Subcontracts	**Values totaling contract price (from Schedule of Values)**	**Values of work in place and materials on site at end of this period.**	**Values at beginning of this period. (Same as Col. 2 on last Estimate.)**	**Increase during this period. (Col. 2 less Col. 3.)**	**Values of Balances to be performed. (Col. 1 less Col. 2.)**
*					
Subtotals as to Original Contract:					
Net Totals for Change Orders to date (+ or —)					
Totals as to original Contract and Changes					

***If necessary, indicate "Subtotals Carried Forward."**
(Summaries, Calculations and Certifications on Separate Page 2)

(Final Acceptance Recommendation Letter-Form)

Business Manager
Houston Independent School District

Re: (Name of Project)

Dear Sir:

We have inspected the subject project and find it to be substantially completed in accordance with plans and specifications and recommend its acceptance.

We recommend:

1. That you pay the Contractor's Application for Payment in the amount of $________________, less $______________retained for completion for certain minor items of the contract, making a net amount at this time of $__________________. This payment is contingent on the receipt of all lien releases and certificates of inspection specified.
2. That the Contractor be allowed to discontinue his Builder's Risk Insurance on the date following acceptance of the project by the Board of Education.
3. That no liquidated damages are due.
4. That the Houston Independent School District assume obligations for utilities from ___(date of occupancy)______.

Respectfully submitted,

____
Architect

Approved:

____
Deputy Superintendent,
Houston Independent School District

EXHIBIT V - A

REFERENCE BIBLIOGRAPHY

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